Railway Age

DAILY EDITION

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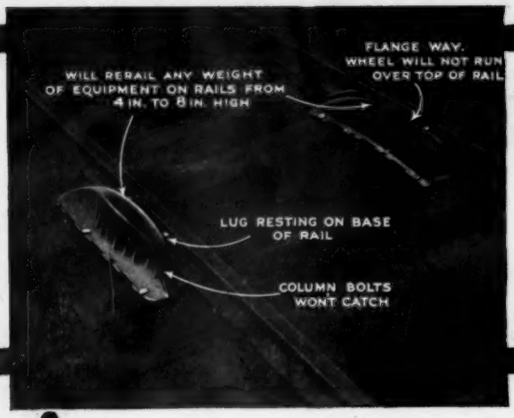

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WE GUARANTEE that of this issue, 12,000 copies were printed; that of these 12,000 copies, 10,300 were mailed to regular paid subscribers to the Railway Age and Railway Mechanical Engineer; 110 were mailed to advertisers; 490 were provided for counter and news companies sales, new subscriptions, bound volumes, samples, copies lost in the mail and office use; 1,100 copies for distribution at Atlantic City.

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The Keystone of the Arch

It is hard for business and industry to settle down to normal after the jolts that they received from the World War. Time will, of course, iron out the wrinkles, but much discomfort and even suffering may be relieved if the underlying economics of the situation are carefully studied and intelligent steps are taken to improve the conditions. The necessity for studying economy and promoting efficiency in all lines of endeavor was never so great; moreover, while this country is particularly favored, it has drawn upon its natural resources with too lavish a hand and must awaken to a full realization of the necessity for conserving these resources to a far greater extent than it has in the past. In considering our resources, however, we too often stress unduly the material resources. One of our greatest extravagances has been the carelessness with which human effort has often been utilized. Comparatively little study has been given to personnel problems. This applies with special force to the railroads, although it would be unfair to say that they are very far behind the average industry or business in this respect. Incidentally, one of the greatest mistakes that has been made has been the haphazard way in which foremen have been selected, trained and supervised. These men are the keystone of the arch and must measure up to a high standard if they are successfully to interpret the spirit of the management to the men, and hold the confidence of the men. If in some way this truth, and what it means to the railroads in the way of improved efficiency and economy, could be deeply impressed upon the minds of the higher officers, the results would be astounding.

A Convenience and a Suggestion

The Railway Supply Manufacturers' Association, in placing a 350-page pocket notebook in the hands of each member of the railway associations meeting on the pier during the next two weeks, has provided the railroad men with a real convenience. One of the pages is devoted to each exhibitor, whose name, with a description of the exhibit, is printed at the top. These pages are arranged alphabetically so that each one may be located without difficulty. Notes kept in this book will be in excellent form for later reference, which in itself will add considerably to their value. But the distribution of this convenient notebook also carries with it a suggestion. The exhibit should be taken seriously and not considered as a rather elaborate form of entertainment. It has been brought together at large expense and it offers an educational as well as a business opportunity to railroad men which fully justifies the expense, but only if the opportunity which it offers is seriously and consistently utilized. Let the notebook be liberally used.

Keep Work Off the Small Repair Track

There is always a certain amount of car work which necessarily must be done on small repair tracks with simple, inexpensive devices. Work done at these outlying points is costly, but oftentimes they are allowed to handle work that could have been done much more cheaply by a large shop with better facilities. A typical example is the changing of wheels on passenger cars. How often wheels near the condemning limit are allowed to run until the inspector at some out-of-the-way terminal finds that they take the gage. Then the repair track force has a job on its hands. The body has to be jacked high to roll out the trucks and the trucks in turn must be jacked up to remove the wheels. At a larger shop, where a drop pit is available, the work could be done in one-fifth the time. Is this not typical of what goes on every day? There seems to be a need for a different viewpoint with regard to the methods and facilities for car repairs. As much of the work as possible should be done at the principal shops. At the more important points the work should be systematized and an effort should be made to apply power operated devices and efficient tools instead of doing the work by an extravagant expenditure of manual labor.

Suggestions as to Apprentices

The supply of skilled shop mechanics is not being recruited nearly as rapidly as it should be to take care of future requirements. Steps should be taken at least to make sure that each shop maintains its full quota as provided for in the national shop agreement. Moreover, it is important that measures be taken to insure that the best possible mechanics will be made from the boys who are now enrolled in apprenticeship courses. One superintendent of motive power, a skilled observer and a man of vision, indicates that the following are essential features of an apprenticeship course: (1) Follow the progress of each apprentice through the shops and see to it that he does not stagnate on any one class of work; (2) determine, if possible,

what class of work he is best suited to and develop him accordingly; (3) make the drawing room work interesting and if possible have the more advanced apprentices work on drawings that are actually to be used in connection with their shop assignments; (4) allow both the regular and the helper apprentices to assist in work in connection with the making of locomotive indicator tests and similar special work.

Railroad Radio Application

The advent of the radio broadcasting station has focused more attention upon wireless communication during the past year than has ever been given to it during the entire 25 years since its inception. The reason lies obviously in the successful development of the radio telephone by which wireless transmission of speech has been made possible. Prior to this development general interest in the art was restricted to a limited number, largely boys, who would take the trouble and time to learn the telegraph code. The radio telephone has changed all this and subsequent applications of this new invention bid fair to reach no mean proportion. On railroads, experiments showing the possibility of communication between stationary and moving equipment have proved to be most successful. Just what these experiments may ultimately lead to, is more or less a matter of conjecture. If there is a demand for public communication facilities on moving trains, such facilities will certainly be installed. From a purely operating standpoint, there is great likelihood of establishing communication between dispatchers and train crews, and on long freight trains between locomotive and caboose. The value of such communication is difficult to estimate, but it is almost a certainty that over a period of time it would prove to be an important factor in expediting the movement of trains. For roads employing tug boats, wireless communication between dispatchers and boats will prove to be of inestimable value. It has already proved its value for emergency conditions. Just what lies in the immediate future as regards the adoption of radio communication by the railroads is difficult to predict, but there can be no longer any doubt that the subject is one deserving of careful consideration.

Maintenance of Friction Draft Gear

From the theoretical standpoint the superiority of friction draft gear over draft springs is easily demonstrated. The capacity of springs is so low that they can take up the energy in a car only if it is moving at extremely low speeds and they do not give the proper protection to heavy cars. Nevertheless it is a fact that some roads maintain that springs give as good results as friction gears, which suggests that the springs may have some advantages that are not apparent from the theoretical standpoint. The explanation is probably to be found in the condition of many of the friction gears in service. A spring exerts a considerable force to return to normal position. Observation shows that friction gears often have free slack or stick so that the travel and capacity are reduced. The statement has been made that the coupler key bearing on the sills often takes the shocks of pulling and buffing, but this is probably a rare condition. Granting that friction gears sometimes are ineffective, the gear is not entirely to blame. A friction draft gear is a machine for dissipating energy. Like any machine it cannot operate properly for an indefinite period without attention. Would it not be worth while to inspect and if necessary overhaul friction draft gears periodically to get the benefits that can be obtained from these devices when the are operating properly?

Wages of Supervisory Officers

The members of the Railroad Labor Board who are attending the conventions in a body deserve to be congratulated on the wisdom and discrimination shown by them in their recent decision in the shop crafts wage case in refraining from awarding any reduction in the compensation of supervisory officers in the mechanical department. For years most supervisory officers of railways were paid too little in proportion both to the salaries of the officers above them and the wages of the employees whose work they directed. In the long run this was bound to have a bad effect on railway efficiency. It discouraged many supervisory officers and in some cases made it difficult to get the most competent men to accept such positions. The most capable men available are needed in supervisory positions, both because of the immediate importance of their work and because an ample supply of able and experienced men should always be available for promotion from supervisory positions to higher and more responsible places in the railway organization. The board has done not only the supervisory officers, but the railways, a good service by using its influence to cause the former to be paid as they should be.

Light Gasoline Rail Motor Cars

One of the most noticeable recent developments of transportation methods has been the application of the light gasoline engine driven car for handling passenger and baggage traffic on branch lines or other places where the amount of business has not been sufficient to meet operating expenses of a locomotive and one or two cars. To be sure somewhat similar attempts were made a number of years ago but the anticipated economies were not realized. This lack of success was due partly to the fact that the gasoline engine was then in the early stages of its development, and partly to a failure to realize the limitations of this type of prime mover. Since that time the gasoline engine has been highly developed and is used in an enormous number of automobiles and trucks; the size of such engines, however, still remains at less than 75 hp. Auxiliary devices, such as transmission, clutches, etc., have also reached a high stage of development. A few years ago several railroads converted road motor trucks or busses to rail use by substituting special wheels and making a few other changes. Some of the truck builders soon saw that here might be a new field for business and built a number of similar converted busses. Later on other cars were constructed, the design of which was worked out by co-operation between railroad engineers and the truck builders. In a general way the results have been highly encouraging and it would appear that there is a field where such vehicles can replace a steam-operated train with decided economies in operation and with satisfaction to the public. In considering new applications of such motor cars the vital necessity of keeping the weight of every part of the car down to a minimum and the utilization of highly developed engines of the size now used in road motor trucks should not be overlooked. With these limitations, however, the seating capacity of the cars will not exceed 35 or 40 persons. Future developments will doubtless be along the line of improvements in details of construction, particularly in running gear.

The Present Status of Piecework

UNDER THE RAILROAD Administration all railroad shops in the United States were put on a day-work basis and a uniform rate of pay given for similar work, irrespective of the relative efficiency of the men, their geographical location, or variable living costs. Without doubt the abolition of piece work was one of the most serious mistakes of the Railroad Administration and one which entirely disorganized many shops throughout the country, changing them from smooth-running organizations with high production to shops in which the men were continually dissatisfied and patently endeavoring to curtail production. Admitting that certain features of piece work are undesirable and admitting that some railroad men of considerable prominence can be found who do not favor the system, piece work, or some equivalent method of paying men in proportion to their industry and skill, is absolutely essential to bring shop production up to the point where it ought to be and reduce correspondingly the cost of locomotive and car repairs.

When there is a surplus of labor there may not be a great need of piece work because the desire to hold their jobs provides men with the incentive necessary to produce a fair day's work. When the shoe is on the other foot, however, and there is more work than men, production naturally tends to fall off. It is simply a case of psychology. Not one man in a thousand ever works just for the love of working. There must be some incentive, whether desire for advancement, hope for greater remuneration, or fear of losing one's job.

The stock arguments against piece work are many, and yet most of them can be refuted by other arguments which stand the test of common sense. One of the principal difficulties and one which perhaps influenced the Railroad Administration more than any other in its decision to eliminate piece work, was the difficulty of determining a proper basis upon which to raise the piece work rates. This is perhaps the most serious objection to piece-work but it would seem that some system could be devised of expressing definite operations on a time basis rather than a price basis. If necessary, as a result of changes in the cost of living, to reduce the rate of compensation, the general wage rate could be reduced correspondingly without making any change in the time rate for the operation. This would indicate to the shop men just where and why the necessary reduction was made and there would be no feeling that the time rate for the individual job was being cut.

It has been said that inferior work is done under piecework systems, and the answer is that a careless workman will do careless work under any system, *if he can get away with it*. The most effective way to checkmate him is for the inspector to discover one or two defective jobs and make him do them over again at his own expense. One or two examples of this kind are usually sufficient. The arguments that work will be hidden away and that some work may be paid for twice can doubtless be substantiated in a few cases, but it is safe to say that in the main, with competent inspectors and rates fairly set, piecework represents the best system of wage payment from the standpoint of both management and men which has yet been tried. Within recent months the Labor Board has removed the inhibition against piece-work and at the request of a large proportion of the men certain shops have gone back on the piece-work system of payment, in one case at a 25 per cent increase over 1917 piece-work rates. In view of the good showing of railroad and contract shops operated on a piece-work basis and because of the need for reducing expenses, it will be interesting to note the success attained by those shops which are now reinstating piece-work systems.

Program for This Week

THE MEETINGS OF Division V—Mechanical, American Railroad Association, will be held in the Greek Temple on the Million Dollar Pier. The official headquarters of the Division will be at the Marlborough-Blenheim Hotel. The sessions will open at 9.30 a.m. and the members are requested to be in their seats promptly.

Wednesday, June 14, 1922
9:30 a. m. to 12:30 p. m.

Prayer.
Address of Welcome by Mayor of Atlantic City.
Opening Exercises, Including Address by Chairman.
Action on Minutes of Annual Meeting of 1920.
Appointment of Committee on Subjects, Resolutions, Correspondence, Obituaries, etc.
Unfinished Business.
New Business.
Report of General Committee.
Discussion of Reports on:
- Nominations.
- Safety Appliances.
- Scheduling of Equipment Through Repair Shops.

ENTERTAINMENT

10.30 a. m.—Orchestral Concert, Entrance Hall, Million Dollar Pier.
3.30 p. m.—Orchestral Concert and Impromptu Dancing, Entrance Hall, Million Dollar Pier.
4:30 p. m.—Tea will be served in Entrance Hall.
9:00 p. m.—Informal Dance including Special Feature: Ball Room, Million Dollar Pier.

Thursday, June 15, 1922
9:30 a. m. to 12:30 p. m.

Discussion of Reports on:
- Prices for Labor and Material.
- Arbitration.
- Tank Cars.
- Loading Rules.
- Train Lighting and Equipment.

ENTERTAINMENT

10:30 a. m.—Orchestral Concert, Entrance Hall, Million Dollar Pier.
3:30 p. m.—Orchestral Concert with Impromptu Dancing, Entrance Hall, Million Dollar Pier.
4:30 p. m.—Tea will be served in Entrance Hall.
9:30 p. m.—Grand Ball, Ball Room, Million Dollar Pier.

Friday, June 16, 1922
9:30 a. m. to 12:30 p. m.

Discussion of Reports on:
- Car Construction.
- Couplers and Draft Gears.
- Brake Shoe and Brake Beam Equipment.
- Train Brake and Signal Equipment.
- Car Wheels.

ENTERTAINMENT

10:30 a. m.—Orchestral Concert, Entrance Hall, Million Dollar Pier.
3:30 p. m.—Orchestral Concert with Impromptu Dancing, Entrance Hall, Million Dollar Pier.
4:30 p. m.—Tea will be served in Entrance Hall.
9:00 p. m.—Informal Dance, Canadian Night with Special Features Ball Room, Million Dollar Pier.

Saturday, June 17, 1922

Entire Day Set Aside by Mechanical Division V to View the Exhibits.

ENTERTAINMENT

10:30 a. m.—Orchestral Concert, Entrance Hall, Million Dollar Pier.
3:30 p. m.—Orchestral Concert with Impromptu Dancing, Entrance Hall, Million Dollar Pier.
9:00 p. m.—Informal Dance, Carnival Night with Special Features by H. T. McConnell of Chicago, Ball Room, Million Dollar Pier.

Long Distance Telephone Service

A SWITCHBOARD with necessary operators will be established on the Pier in connection with several long distance booths, conveniently located in different sections of the pier.

Cornell Dinner on Monday

THE DINNER of the Cornell alumni, which is a regular feature of convention week, will be held Monday evening, June 19, at the Traymore. All who expect to attend should register with A. F. Stuebing at the *Railway Age* booth.

Post Office and Mail

UNITED STATES MAIL addressed care of Secretary's Office, Million Dollar Pier, Atlantic City, N. J., will be taken care of and distributed to exhibitors' booths.

Members are requested not to send general circular matter for distribution to other exhibitors, as this is a violation of the association rules.

R. S. M. A. Annual Meeting and Election

THE ANNUAL meeting of the Railway Supply Manufacturers' Association will be held in convention hall on the pier at 12 o'clock Saturday. District meetings for the election of executive committee members will be held Saturday morning from 10:30 to 11:30 o'clock.

President Schurch, of the Railway Supply Manufacturers' Association, has appointed the following members to serve as a nominating committee to select the Association's officers for the following year: S. P. Bush, chairman; Sam Allen, Horace Parker, Frank Lanahan, Burton Mudge, George L. L. Davis and Walter B. Leach.

This is Flag Day

TODAY IS THE 145th anniversary of the adoption of the national flag by the Continental Congress. It may be properly observed by displaying a small American flag in your buttonhole. Several members of the Mechanical Division have made a point of religiously observing this day in past years and have felt that more of the convention attendants should recognize it. To make sure that the matter would not be overlooked, the *Daily* two years ago commissioned R. D. Smith, superintendent motive power and rolling stock of the Boston & Albany, to see that this important event was not overlooked in the *Daily* this year. He has discharged his duty faithfully and we hope that the result will be a generous display of flags.

Railroad Club Secretaries Meet Tomorrow

THE SOCIETY OF RAILWAY CLUB SECRETARIES will hold its annual meeting at the Marlborough-Blenheim tomorrow, Thursday morning, at 10.00 a. m. It will be followed by a "round-table luncheon" immediately after the adjournment of the meeting of the Mechanical Division, or about 1.00 p.m. The "round-table luncheon" was started several years ago and allows the secretaries and their guests to have an informal discussion on matters relating to the growth and development of the clubs. Each secretary is privileged to invite to this luncheon as a guest of the Society the president of his club or the next highest ranking officer who may be present at the convention; also the chairman of the subjects committee. Several of the clubs have incorporated new features in their programs during the past two years and have taken important forward steps. It is anticipated, therefore, that a discussion of this sort will be most fruitful. Since the last annual meeting of the Society of Railway Club Secretaries the Western Railway Club has resumed its membership in the organization.

Rolling Chairs

THE TRANSPORTATION COMMITTEE will provide rolling chairs for members and guests of the convention wearing official badges within the time limits and at the places mentioned below.

Convention chairs are not allowed to wait more than fifteen minutes. The Transportation Committee will consider it a favor if members or guests of the associations will report to the committee any inattention on the part of an attendant. If the number on the chair is given, it will facilitate checking the complaint.

Unoccupied chairs may be stopped at any point on the boardwalk, except between the Marlborough-Blenheim and the pier, and they may be used in either direction.

Rolling chairs will be provided from the following stations, between the hours indicated, from June 14 to June 21, inclusive:

	A.M.	P.M.
The Pier	9:00 to	6:30
Marlborough-Blenheim	9:00 to	6:00
Traymore	9:00 to	6:00
Chalfonte Hotel	9:00 to	6:00
Chelsea Hotel	9:00 to	6:00
Alamac Hotel	9:00 to	6:00
St. Charles Hotel	9:00 to	6:00
The Breakers	9:00 to	6:00
Ambassador Hotel	9:00 to	6:00
	P.M.	P.M.
To all Entertainments on Pier	8:30 to	10:00

Enrollment Regulations

THIS YEAR special badges have been set aside for the officers and members of the executive or general committees of the various associations involved in the Atlantic City meetings. This applies also to the committee men of the Railway Supply Manufacturers' Association. All those included in these classifications should request the special badges when they enroll; this will be of great assistance to the Enrollment Committee and will facilitate the handling of registration.

Any mechanical department officer of the rank of general foreman or above is entitled, upon presenting proper credentials either in the form of a letter from his company instructing him to attend the conventions, or his annual transportation, to receive a Division V, Mechanical, membership badge. Guest badges will be issued to those below the rank of general foreman.

In the case of Division VI—Purchases and Stores, all officers in these departments having the title of assistant storekeeper or higher will be entitled to membership badges. Guest badges will be issued to those below the rank of assistant storekeeper.

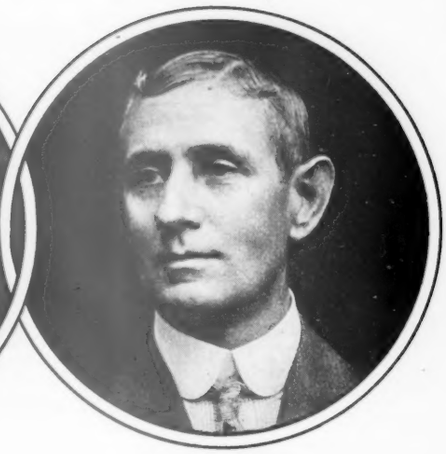
Badges positively must not be loaned and no badges will be given to any one to be delivered to someone else.

Enrollment started on Monday afternoon at two o'clock. The enrollment booth will be open, during the conventions, as scheduled below.

		Morning	*Afternoon*	*Evening*
Wednesday,	June 14	9 to 1	2 to 6	7 to 8
Thursday,	June 15	9 to 1	2 to 6	7 to 8
Friday,	June 16	9 to 1	2 to 6	7 to 8
Saturday,	June 17	9 to 12	2 to 4	7 to 9
Sunday,	June 18	11 to 12		7 to 8
Monday,	June 19	9 to 1	2 to 6	8 to 9
Tuesday,	June 20	9 to 12	2 to 5	
Wednesday,	June 21	9 to 11		

C. D. Jenks
Vice-President

J. F. Schurch
President



J. D. Conway
Secretary-Treasurer

Railway Supply Manufacturers' Association

Pier Not Large Enough to Accommodate Exhibit; Many Prospective Exhibitors Turned Away

THE PROBLEMS that the Railway Supply Manufacturers' Association had to solve in arranging for this year's conventions were both numerous and difficult. No convention was held last year, and at the time the decision was reached to hold one this year business was bad, and there was little assurance that it would get much better.

In consequence, many concerns hesitated about exhibiting at all, and considered sending only a much-reduced representation here. The confidence shown and the work done by the officers and members of the executive committee helped to arouse interest; and, of course, the interest rapidly became intensified when railway earnings began to improve and many lines began to come into the market for cars, locomotives and supplies of all kinds.

The result is that the convention will open today with the largest exhibit of equipment and supplies in history. In this connection it may be stated that the executive committee greatly regrets its inability to accommodate all those who applied for exhibit space. The pier simply was not large enough.

It is hardly necessary to say this is largely due to the fact that within the next ten days the Purchases and Stores Division convention, the Air Brake Association and the Railway Electrical Engineers' convention, as well as the Mechanical convention, will be held here. The equipment and supply interests never before had opportunity to show their goods to officers in so many branches of the railroad business at one time and place, and as a result of the strenuous and efficient work of the officers and executive committee of the Railway Supply Manufacturers' Association, the exhibit is not only ready unusually early, but is one of the best, if not actually the best, ever given.

The object in preparing the entertainment program has been to incur as little expense as is compatible with providing pleasing and satisfactory entertainment in the intervals between sessions daily, throughout the time the conventions are in session. While the expenditure made for entertainment will not be large, it is believed the program will prove to be all that could be desired.

The conventions follow immediately on the heels of the worst business depression in 50 years—a depression in which many railway equipment and supply concerns that have been successful for years encountered serious financial difficulties. It would not have been surprising, therefore, if the exhibit had been comparatively small and other arrangements of the Supply Association in connection with the conventions had been made on a correspond-

G. W. Denyven

J. M. Gillespie

W. L. Krepps

G. L. Morton

Members of Executive Committee, Railway Supply Manufacturers' Association

L. S. Wright L. B. Sherman E. M. Savercool H. G. Thompson

Members of Executive Committee, Railway Supply Manufacturers' Association

ingly limited scale. The fact that this is not the case is due not only to the natural optimism of the supply fraternity, but to the courage, energy and ability with which the officers and members of the executive committee have shouldered their responsibilities and done their work.

John F. Schurch was elected president of the association at the 1920 meeting and because there was no meeting last year, has had to head up the organization during two difficult years—troublesome because in 1920, after making all arrangements for the convention and a big exhibit, it was thought necessary to cancel them, and this year because of the difficulty in organizing the exhibit after missing a year. Mr. Schurch has been a most active worker in the association for many years, and with his associates is to be heartily congratulated upon the success of the big exhibit this year.

Mr. Schurch is a vice-president of Manning, Maxwell & Moore, Inc., in charge of sales in the middle west and west, with headquarters at Chicago. He is brand new on the job, having assumed this position June 1. He is a graduate of the University of Minnesota, going directly from that institution in 1893 to the Minneapolis, St. Paul & Sault Ste. Marie. He remained with that road until 1905, serving in the office of the auditor, the general superintendent, and in the transportation department, finally attaining the position of chief clerk to the vice-president. For the next eight or nine years he was associated with the Railway Materials Company of Chicago. He was elected vice-president of the Damascus Brake Beam Company in February, 1914, and in June of that year was elected president of the company. He resigned later in the year, however, to become vice-president of the Symington Company and remained with that company until the first of this month.

The vice-president of the association is Charles D. Jenks, president of the Damascus Brake Beam Company, Cleveland, Ohio.

The secretary-treasurer, John D. Conway, has officiated in that capacity for many years, making his headquarters at Pittsburgh, Pa. Naturally a large part of the detail work of the organization devolves upon his shoulders.

Executive Committee

The executive committee consists of the president, vice-president and twelve members who represent seven geographical districts. Several of the members of the executive committee are chairmen of sub-committees, although three important committees—entertainment, enrollment and transportation—have chairmen who are not members of that committee.

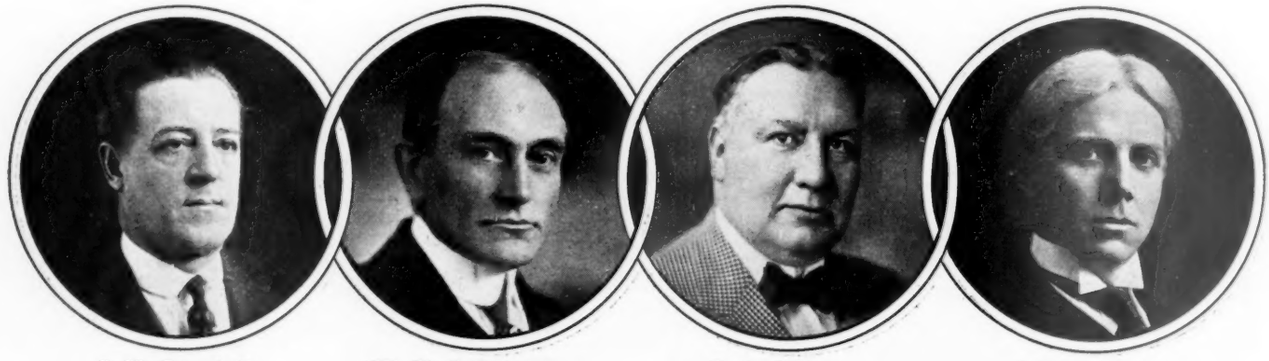
The names of the members of the executive committee and the districts they represent are as follows:

First district (New England states and Canada) one member: George W. Denyven, George W. Denyven & Co., Boston, Mass.

Second district (New York and New Jersey) three members: Charles W. Beaver, Yale & Towne Manufacturing Company, New York; W. K. Krepps, Crucible Steel Company of America, New York; and H. G. Thompson, American Radio & Research Corporation, Medford Hillside, Mass. (Mr. Thompson has moved outside the district since the 1920 meeting).

Third district (Pennsylvania) two members: W. H. S. Bateman, The Parkesburg Iron Company and the Champion Rivet Company, Philadelphia, Pa.; and John M. Gillespie, Lockhart Iron & Steel Company, Pittsburgh, Pa.

Fourth district (Ohio, Indiana and Michigan) two members: George A. Cooper, Frost Railway Supply Company, Detroit, Mich.; and Edward M. Savercool, S. F. Bowser and Co., Inc., San Francisco, Calif. (Mr. Saver-



S. H. Campbell W. H. S. Bateman G. A. Cooper C. W. Beaver

Members of Executive Committee, Railway Supply Manufacturers' Association

cool moved out of the district since the 1920 meeting).

Fifth district (Illinois) two members: L. B. Sherman, *Railway Age,* Chicago; and L. S. Wright, National Malleable Castings Company, Chicago.

Sixth district (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Kentucky and Tennessee) one member: George L. Morton, Galena-Signal Oil Company, Atlanta, Ga.

Seventh district (states west of the Mississippi river, including Louisiana, Minnesota and Wisconsin) one member: S. H. Campbell, Western Railway Equipment Company, St. Louis, Mo.

The members of the executive committee who were elected at the 1920 convention were Messrs. Denyven, first district; Krepps, second district; Savercool, fourth district; Sherman, fifth district, and Campbell, seventh district.

Three new members will be elected this year to succeed Messrs. Beaver and Thompson of the second district, and Cooper of the fourth district.

H. E. Daniels R. J. Himmelright F. H. Smith

Chairmen of the Transportation, Entertainment and Enrollment Committees of the Railway Supply Manufacturers' Association

Exhibit Committee

This committee, which has charge of all exhibit arrangements, is composed of five members, all of whom are also members of the executive committee. Charles W. Beaver is chairman, and the other members are John M. Gillespie, H. G. Thompson, Edward M. Savercool and L. B. Sherman.

Entertainment Committee

This committee, as its name implies, has charge of all entertainment features. Each of the various important events is entrusted to a sub-committee. The members are:

R. J. Himmelright, Chairman, American Arch Company, Inc., New York.
Charles L. Brown, Manning, Maxwell & Moore, Inc., Chicago.
Lewis O. Cameron, Edgewater Steel Company, Washington, D. C.
W. J. Carrigan, International Machinery & Supply Company, Ltd., Montreal, Que.
J. Cizek, The Leslie Company, Lyndhurst, N. J.
W. G. Cook, Garlock Packing Company, Philadelphia, Pa.
R. P. Cooley, Vapor Car Heating Company, New York.
C. W. Floyd Coffin, Franklin Railway Supply Company, Inc., New York.
R. L. DeArmond, Lowe Brothers Company, Dayton, Ohio.
W. J. Doherty, Continental Iron & Steel Company, New York.
Arthur N. Dugan, Bronze Metal Company, New York.
Clark D. Eaton, American Car & Foundry Company, New York.
D. L. Eubank, Galena Signal Oil Company, Cincinnati, Ohio.
J. W. Fogg, Boss Nut Company, Chicago.
George E. Haas, Pyle-National Company, Chicago.
Oscar C. Hayward, Williams-Hayward Company, Chicago.
L. D. Hiner, Joseph T. Ryerson & Son, Chicago.
Arthur G Johnson, Armspear Manufacturing Company, New York.
Webb G. Krauser, Union Draft Gear Company of Chicago, Montreal, Que.
L. J. McCoombs, The Patterson-Sargent Company, Boston, Mass.
W. A. McWhorter, Bradford Draft Gear Company, Chicago.
A. R. Miller, The B. F. Goodrich Rubber Company, New York.
C. R. Naylor, T. H. Symington Company, Chicago.
N. C. Naylor, Railway Steel-Spring Company, Chicago.
George A. Nicol, Jr., Johns-Manville, Inc., New York.
Leslie R. Pyle, Locomotive Firebox Company, Chicago.
S. Worchester Sargent, American Steel Foundries, Philadelphia, Pa.
Gardner W. Taylor, The R. T. Jones Lumber Company, Inc., New York.
H. A. Varney, Sunbeam Electric Manufacturing Company, Chicago.
Fred W. Venton, Crane Company, Chicago.
W. R. Walsh, The Glidden Company, Chicago.
W. M. Wilson, Flannery Bolt Company, Pittsburgh, Pa.

Enrollment Committee

The work of this committee is difficult and arduous. The committee is comparatively small for so difficult and tedious a task. It works in several shifts. The members are:

F. H. Smith, Chairman, Gold Car Heating & Lighting Co., Brooklyn, N. Y.
G. A. Barden, King Pneumatic Tool Company, Chicago.
C. L. Bates, Railway Review, New York.
J. E. Brown, O'Malley-Beare Valve Company, Chicago.
J. E. Dodson, United States Rubber Company, Baltimore, Md.
Arthur Haller, American Locomotive Company, Chicago.
F. C. Koch, Railway Age, New York.
S. I. Leslie, The Leslie Company, Lyndhurst, N. J.
H. V. McKedy, The Glidden Company, New York.
L. D. Mitchell, Detroit Graphite Company, Chicago.
H. S. Patterson, Walworth Manufacturing Company, Boston, Mass.
G. E. Ryder, The Superheater Company, New York.
R. Van Steenburgh, The Okonite Company, Passaic, N. J.
C. W. Sullivan, Garlock Packing Company, Chicago, Ill.
H. K. Williams, Safety Car Heating & Lighting Company, New York.
Edward Wray, Railway Purchases & Stores, Chicago.

Transportation Committee

The transportation committee looks after the assignment of rolling chairs and other local transportation matters. Its members are:

H. E. Daniels, Chairman, West Disinfecting Company, Chicago.
W. S. Atkinson, Cook Paint & Varnish Company, Kansas City, Mo.
G. E. Anderson, The Duff Manufacturing Company, St Louis, Mo.
C. Beaumont, Boss Nut Company, Baltimore, Md.
G. R. Boyce, A. M. Castle & Co., Chicago.
Ralph Brown, The Curtain Supply Company, Chicago.
T. F. Clifford, Globe Seamless Steel Tubes Company, Chicago.
H. A. Clark, The Garlock Packing Company, Montreal, Que., Canada.
Howard P. Cook, Columbia Nut & Bolt Company, Bridgport, Conn.
J. F. Comee, Hutchins Car Roofing Company, Chicago.
F. J. Coolidge, The Buckeye Steel Castings Company, Chicago.
F. M. Condit, Fairbanks, Morse & Co., Chicago.
C. D. Derby, The Joyce-Cridland Company, Dayton, Ohio.
F. E. Finley, La Clede Steel Company, St. Louis, Mo.
Frank B. Flinn, Griffin Wheel Company, Chicago.
E. C. Folsom, The Railway Materials Company, Chicago.
J. N. Gallagher, O'Malley-Beare Valve Company, Chicago.
C. H. Gaskill, Baldwin Locomotive Works, Philadelphia, Pa.
E. L. Georger, Pratt & Lambert Co., Chicago.
C. J. Gorman, Union Draft Gear Company, Chicago.
William Hickey, Magnus Metal Company, Chicago.
Cyrus J. Holland, The Wine Railway Appliance Company, Chicago.
George Hannaway, The National Refining Co, Chicago.
W. A. Housten, Joseph Dixon Crucible Company, Baltimore, Md.
J. W. Hackett, The Okonite Company, Passaic, N. J.
K. M. Hamilton, The Bettendorf Company, Chicago.
W. J. King, Hewitt Rubber Company, Chicago.
Henry S. LaBarge, H. B. Channon Company, Chicago.
George J. Lawrence, J. B. Ford Company, Wyandotte, Mich.
Floyd K. Mays, Bradford Draft Gear Company, New York.

A. L. McNeill, Central Electric Company, Chicago.
J. A. McFarland, The Bird-Archer Company, St. Louis, Mo.
J. J. Norton, Globe Seamless Steel Tubes Company, New York.
Bruce K. Owens, Magnus Metal Company, Chicago.
H. A. Pastre, Liberty Manufacturing Company, Pittsburgh, Pa.
R. R. Porterfield, The Superheater Company, Chicago.
T. J. Powell, Galena Signal Oil Company, St. Louis, Mo.
H. D. Richardson, American Steel Foundries, New York.
A. Roberts, Grip Nut Company, Chicago.
W. B. Ross, Edwin S. Woods Company, Chicago.
George H. Snyder, American Steel Foundries, St. Paul, Minn.
E. E. Thulen, Duff Manufacturing Company, Chicago.
J. H. Trent, Johns-Manville, Inc., St. Louis, Mo.
G. S. Turner, Harry Vissering & Co., Chicago.
A. H. Weston, T. H. Symington Company, New York.
W. F. Walsh, Galena Signal Oil Company, Chicago.
S. C. Watkins, Southern Wheel Company, Atlanta, Ga.
R. R. Wells, U. S. Metallic Packing Company, Philadelphia, Pa.
T. H. Williams, Chicago-Cleveland Car Roofing Company, Chicago.

Other Committees

There are several other important committees which are made up entirely of members selected from the executive committee.

The finance committee includes George A. Cooper as chairman, W. K. Krepps and George W. Denyven.

The badge committee consists of L. S. Wright, chairman, George W. Denyven and Sterling Campbell.

The hotel committee consists of W. K. Krepps, chairman, L. S. Wright and W. H. S. Bateman.

The by-laws committee consists of George L. Morton, chairman, W. H. S. Bateman and Sterling Campbell.

Chairman Tollerton on His European Trip

W. J. Tollerton, chairman of the Mechanical Division, has recently returned from Europe, where he attended the ninth congress of the International Railway Association, held at Rome, Italy, April 18 to 28, inclusive. During the trip Mr. Tollerton traveled some 4,000 miles over the railroads of England, Belgium, France, Switzerland and Italy, and had a splendid opportunity to compare railroad practices in Europe with those in America.

Commenting on the wide differences in the character of equipment and methods of the railroads of the two continents, Mr. Tollerton said that, generally speaking, they have been developed under such widely different commercial and traffic conditions that, in fairness both to Europe and to America, no direct comparison can be made, and that if one looks far enough he will find that there are just as good reasons for the light freight trains and small cars of the Continental railroads as there are for the heavy trains of large capacity cars common in America.

"Take the fuel situation in Italy as an illustration," he said. "This country is an extensive producer of raw silk. Mulberry trees are grown for the leaves, which are stripped from the branches as food for silkworms. As soon as the leaves are harvested, the trees are cut back and the year's growth of branches is carefully collected and laid on the bare stumps of the trees to season. These branches are practically the only native fuel; the entire coal supply is imported. In Milan coal retails for 700 lire, or about $42 a ton, American money, and is distributed in pounds, not in tons. Few dealers could afford to purchase coal in 50-ton lots, and the small 10-ton cars commonly used are as large as are justified by the customs of the trade.

"The respect of the Italians for coal is indicated by the frequency with which loaded coal cars are covered with tarpaulins," he continued. "When not protected in this way, the tops of the loads are invariably covered with a coat of whitewash to detect and discourage pilfering."

To the American railroad man probably one of the most marked differences between the practices of the two continents is in the weight and character of passenger equipment. Mr. Tollerton was the American reporter on the subject of passenger carriages at the Rome meeting of the International Railway Association, and says that in the discussion of this subject the European railway delegates objected to the American type of passenger car construction as being entirely too heavy. In France, before the introduction of steel underframes, the weight of passenger cars averaged about 400 lb. per passenger carried, and since the introduction of steel underframes the average does not exceed 600 lb. per passenger, which is considered to be the practicable limit. In this country the weight of coaches per passenger seating capacity seldom runs below 1,400 lb. and in sleeping cars is as high as 6,000 lb. All consideration for the convenience and safety of passengers seems to be entirely omitted in the design of coaches on the Continental railroads, but here again a strict comparison can not be made with our cars because the average journey, except on De Luxe trains, is much shorter in Europe than in America.

In Europe, Mr. Tollerton says, first cost is a greater factor in determining the character of equipment than it is in this country. Continental European roads show a marked preference for gas lighting rather than electric lighting in passenger cars. They admit the economy of operation of the electric lighting equipment, but stick to the gas lighting system because of the greater expense of installing the electrical equipment.

Generally speaking, Mr. Tollerton found passenger car conditions rather poor on the Continent, but motive power conditions very fair, particularly in France, England and Belgium, the cost of fuel compelling attention to the motive power in the interests of fuel economy. In this connection most train schedules have been very greatly lengthened in order to reduce the fuel consumption, a practice which is made possible by the fact that all employees in the train service are paid either on a weekly or a monthly basis.

"The trip was most interesting," said Mr. Tollerton in conclusion. "We were received with the utmost courtesy by railroad officials in every country we passed through, who did everything that conditions would permit to make our journey a pleasant and comfortable one."

Mr. Tollerton is accompanied to the convention by Mrs. Tollerton, and they are at the Marlborough-Blenheim.

Special Train From Chicago

The special Atlantic City convention train over the Pennsylvania Lines left Chicago at 1:40 o'clock Monday p. m. It ran in two sections and the story goes that if the Pennsylvania officials had not been handicapped for passenger equipment, they would have run the train in three sections. The make up of the two sections was almost identical—1 baggage, 1 buffet, 2 dining, 3 sleeping, 1 compartment and 1 observation car.

Though the starting time was slightly delayed, both sections arrived in Atlantic City at 10:45 o'clock yesterday A. M., practically on time.

The journey to the seashore was without incident all the passengers enjoying the trip.

New Purchasing Officer for the Frisco

A. H. Laret has been appointed assistant to the vice-president and chief purchasing officer of the St. Louis-San Francisco with headquarters at St. Louis, Mo.

Conventionalities

"Uncle Bill" Lewis arrived early, hale and hearty, having fully recovered from a rather serious accident last winter. He joined the Master Car Builders' Association in 1878, when it was eleven years old.

Clement F. Street is celebrating the fact that it is thirty years since he attended his first convention. He was at Saratoga in 1892, and has missed only one convention since. This was in 1904, when he was in Australia.

W. B. Storey, president of the Atchison, Topeka & Santa Fe, arrived yesterday to attend the convention. Mr. Storey is the A. R. A. executive committee member for the Mechanical Division and is, therefore, especially interested in the conventions and the exhibit.

Charles R. Ellicott of the Westinghouse Air Brake Company will be missed at the conventions this year. He has found it necessary to seek relief from business activities for a short time and is now on a trip in the west; it is expected he will follow that plan of recreation during the remainder of the summer.

Robert B. Rasbridge, superintendent car service, Philadelphia & Reading, one of the workers of the Mechanical Section, arrived early and is at the Dennis. Mr. Rasbridge's many friends at the convention greatly regret the passing by death of Mrs. Rasbridge, some two weeks ago.

Mr. and Mrs. George A. Barden, Philadelphia, were among the early arrivals. It is their twenty-first convention. This year Mr. Barden is announcing his new business connection—that of district manager of the King Pneumatic Tool Company, with headquarters at Philadelphia.

R. H. Aishton, president of the American Railway Association, is expected to arrive in Atlantic City on Sunday. He will attend a meeting of the executive committee of the A. R. A. in New York on Thursday, and it is thought that some other members of the executive committee will come down with him.

Leslie R. Pyle, of the Locomotive Firebox Company, is among those whose plans for attending the convention went wrong. Mr. Pyle went out on the Southern Pacific to be present at a test of the thermic syphon, and the work has been delayed so he will spend the convention weeks on the Pacific Coast instead of on the Boardwalk.

John Hennessey and John Lentz, two old-time conventionites known to all, are here as usual. "J. H." has fully recovered from an operation two years ago when he missed the 1920 gathering of the clans. He is now enjoying good health. "J. L." seems to be minus his market basket and umbrella and his many friends are mystified thereat.

Charles D. Jenks, vice-president of the Railway Supply Manufacturers' Association, will be a late arrival at the convention. At his home in Cleveland he is making a full recovery from a serious abdominal operation performed some five weeks ago in a Cleveland hospital. Mr. Jenks expects to join his many friends here within a few days.

C. F. Giles, superintendent of machinery of the Louisville & Nashville, reports that traffic recently has picked up remarkably on his railway and that it is now handling a large business. The northbound movement of fruits, vegetables and other perishables is especially heavy. The Louisville & Nashville's territory plainly is entering a new period of prosperity.

George Cooper came early with news about a long day's drive in an automobile he took the other day and a reduction of his weight. There was some confusion at first as to whether he said he drove 290 miles in one day and formerly weighed 364 pounds, or vice versa. The matter finally has been cleared up. Just before he left he drove from Detroit to Traverse City, Mich., 364 miles in a single day. It wasn't the drive that caused it, but he announces also that he recently has been wasting away, his avoirdupois having declined from 290 pounds to a trifle of only 266. Even at this rate, it will take George some time to qualify as a featherweight.

E. M. Harshbarger, formerly assistant manager of the St. Louis district office, also in charge of railway sales in that district for S. F. Bowser & Co., Inc., manufacturers of oil storage systems, has been appointed manager of the railroad sales department, with headquarters at the home office in Ft. Wayne, Ind. During the war it was necessary for the Bowser Company to devote almost its entire facilities to the requirements of the government. Since the war its railroad department has been reorganized on a basis which now makes it possible to extend engineering and sales service to railways from any and all of its branch offices, which are located in every large city in the United States. This is Mr. Harshbarger's first convention, but it will not be his last.

A. W. Lemme, who completed his apprenticeship as a moulder in the Bloomington, Ill., shops of the Chicago & Alton in 1892 and who since that time has had a very wide foundry experience in various capacities, has recently joined the staff of the O'Malley-Beare Valve Company, Chicago. He was for eleven years general superintendent of the Chicago Bearing Metal Company and will function in his new connection as a bearing metal specialist in charge of the O'Malley-Beare journal bearing and locomotive brass casting service. Mr. Lemme is a past president of the Chicago Foundrymen's Club and is acting as a member of the Fuel Auxiliary of the Illinois Manufacturers' Association.

J. M. Davis, president of Manning, Maxwell & Moore, Inc., will come to the convention today as a railway supply man for the first time. He was elected to his present position a year ago, after having been in railway service almost exactly 30 years, and after having climbed the ladder all the way from a freight brakeman on the San Antonio & Aransas Pass to vice-president in charge of operation of the Baltimore & Ohio. Few men have as broad a knowledge of general railway conditions in North America as Mr. Davis, since he worked at different times as an employee or officer on the San Antonio & Aransas Pass; Gulf, Colorado & Santa Fe, Mexican Central, Great Northern, Erie, Oregon Short Line, Southern Pacific, of which he was general superintendent, Cincinnati, Hamilton & Dayton, and Baltimore & Ohio Southwestern, of which he was general manager, and Baltimore & Ohio, of which, as already indicated, he was vice-president. He left the Baltimore & Ohio in 1919 to become president of the Rock Hill Iron & Coal Company and associated corporations, including the East Broad Top Railroad & Coal Company.

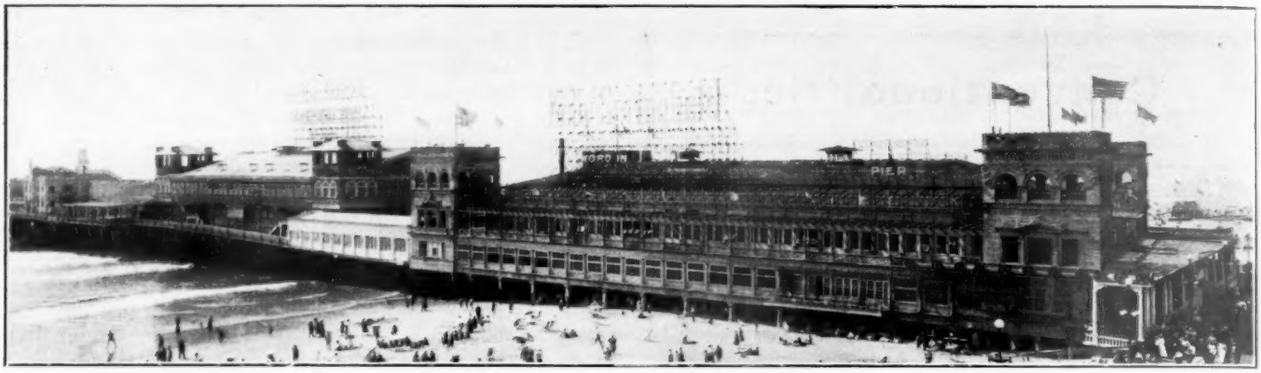


Exhibit Characterized by Many New Devices

Machine Tool Exhibit the "Best Ever"; Large Track Exhibit; Important Developments in Specialties and Equipment Since 1920

THE RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION and its exhibit committee made a record this year. Shipments of exhibits arrived earlier than usual in Atlantic City and were promptly taken to the pier and installed with clock-like precision. Everything worked smoothly and on time. Last evening the final touches were given, the cleaning up finished, and all was in readiness for this morning.

The scope of the exhibits is without question the largest in the history of the R. S. M. A. It ranged from the many new features in small equipment devices for cars and locomotives to the complete cars and locomotives themselves. The track exhibit on Mississippi avenue near the Boardwalk shows a number of locomotives and passenger and freight cars. A careful inspection and study of this exhibit should be made by all convention people before they leave Atlantic City.

At one time during the past winter it looked as if the entire space in Machinery Hall would not be used by the manufacturers of machinery and tools. Subsequently, however, every square foot of space was taken and today there is presented for the inspection of the railway men the most complete machine tool exhibit ever made. In order to take care of such an exhibit it was found necessary for operating purposes to increase the air and electric power service more than 50 per cent over previous years.

Ninety-six thousand square feet of exhibit space—all the available space on the pier, except the balcony, which has been found to be not desirable—is being used this year by 341 exhibitors—and it was found some time ago that there was not enough space to go around and make every applicant happy. In many instances, therefore, the exhibit committee was simply compelled to allot much less space to applicants than had been asked. Many of the larger companies in the full convention spirit of co-operation, readily cut down their requirements for space in favor of those who had none. Even at that it is a regrettable fact that 75 applications for space could not be granted.

Year	Exhibit space* sq. ft.	Number of exhibits
1910	71,019	...
1911	76,110	245
1912	83,507	262
1913	87,360	277
1914	82,218	266
1915	70,412	222
1916	76,643	258
1917 and 1918	no exhibit†	...
1919	93,499	314
1920	100,061	365
1921	no exhibit††	...**
1922	96,000†††	341

*Square feet of space actually paid for. Does not include free space to M. C. B. committee.
**Number at opening of the convention this morning; final figure will be larger.
†No exhibit because of war.
††No exhibit because of cancellation of convention.
†††Balcony not used this year because of poor location.

List of Exhibitors

Aeroil Burner Company, Inc., Union Hill N. J.—Portable oil burners; thawing outfits for track and maintenance departments; kerosene blow torches; blue flame kerosene gas burners; pitch and asphalt kettle burners; locomotive and steel car repair torches; combination soldering iron and blow torch. Represented by George P. Kittel and Gustav Kittel. Space 704.

Air Reduction Sales Company, New York.—Demonstrations of Airco-Davis-Bournonville specially designed machines for automatic oxy-acetylene welding and cutting (radiagraph, oxygraph and camograph) and of hand welding and cutting torches; cylinders of Airco oxygen and Airco acetylene and various other units of Airco and Airco-Davis-Bournonville manufacture. Represented by B. U. Law, E. M. Sexton, R. T. Peabody, J. L. Anderson, H. H. Melville, W. H. Ludington and A. Blaser. Spaces 639 and 700-701.

Ajax Manufacturing Company, The, Cleveland, Ohio.—New model upsetting forging machine with automatic self-adjusting safety pitman; samples of railway forgings made by Ajax forging machine methods. Represented by J. R. Blakeslee, H. D. Heman, A. L. Guilford and J. A. Murray. Spaces 65-67.

Allegheny Steel Company, Brackenridge, Pa—ASCO hoodless type A. R. A., and hood type M. C. B. journal box lids; ASCO standard A. R. A. truck spring plates; miscellaneous pressed steel stampings for railroad work. Represented by L. W. Hostetter and B. E. Eudy. Spaces 170-171.

American Abrasive Metals Company, New York.—Feralun brake shoes and structural safety car step treads; anti-slip floor plates; heat resisting castings; Bronzalun, Vulcalun and Alumalun safety treads and saddles. Represented by H. Weaver Mowery and Ralph C. Davison. Space 626.

American Arch Company, New York.—Locomotive arch brick. Represented by LeGrand Parish, William L. Allison, J. P. Neff, R. J. Himmelright, J. T. Anthony, George Wagstaff and G. M. Bean. Spaces 414-416-422-424.

American Automatic Connector Company, The, Cleveland, Ohio.—Latest improved American automatic connectors; special lug location for attaching automatic hose connectors as applied to the A. R. A. type D car coupler. Represented by M. A. Barber, F. R. Bolles and L. C. Sprague. Spaces 362-363-364-365.

American Brake Shoe & Foundry Company, New York.—Standard patterns and types of locomotive and car brake shoes. Represented by Thomas Finigan, William B. Given, Jr., F. W.

Sargent, E. L. Janes, M. N. Trainer, R. E. Holt and F. H. Coolidge. Space 418.

American Car & Foundry Company, New York.—Three-electrode Berwick electric rivet heater; two-path Berwick electric rod heater; Berwick electric drop-forging heater. Represented by F. C. Cheston, J. W. Sheffer, W. M. Earl and J. S. Helt. Space 144.

American Chain Company, Bridgeport, Conn. Reading car replacers; Reading rail benders; all types of railroad chains. Represented by A. P. Van Schaick, G. C. Isbester ,A. H. Weston and H. M. Bridgewater. Spaces 305-307.

American Locomotive Company, New York.—Alco reverse gear; Alco reduced body and flexible staybolts with threaded and welded sleeves. Represented by A. Fletcher, L. Bert, J. Davis, J. B. Ennis, D. W. Fraser, W. F. Weller, W. P. Steele, O. P. Parsons, G. Weiler, W. F. Weller, A. W. Bruce, W. E.Corrigan, J. Kindervater, J. Partington, C. J. Mellin, F. Dickinson, R. Anderson, C. C. Jones, H. J. Downes, A. Haller, C. P. Robinson, C. M. Muchnic, A. Hamilton, E. N. Boswell, L. S. Carroll, W. K. Farrell, H. Swoyer, G. Curry, H. C. Butler, R. H. White, J. Magarvey, J. H. Link, C. T. Markel, D. Van Alstyne, A. M. Sheffer, J. G. Blunt, S. Miller, R. Rennie, C. H. Apps, H. C. Penticost, R. J. Finch and J. J. Jones. Space 614.

American Malleable Castings Association, Cleveland, Ohio.—Exhibit descriptive of the mechanical and physical properties of malleable iron castings; miscellaneous line of general castings for car construction. Represented by Frank J. Lanahan. Spaces 110-112-114.

American Mason Safety Tread Company, Lowell, Mass.—Stanwood car steps for passenger and baggage cars; Karbolith composition car floorings; Mason safety car tread brass base; Mason safety car tread steel base. Represented by E. F. Kuemmerle. Space 544.

American Steam Gauge & Valve Manufacturing Company, Boston, Mass.—American special locomotive, steam heat and air brake gauges; open and muffled locomotive pops; dead weight gauge testers. Represented by H. B. Nickerson, G. A. Binz and C. A. Allen. Space 380.

American Steel Foundries, Chicago.—Cast steel bolsters, side frames and couplers; Davis cast steel wheels; Simplex clasp brakes; Ajax and Hercules brake beams; coupler yokes; Economy cast steel draft arms and miscellaneous castings. Represented by G. E. Scott, R. H. Ripley, W. J. Lynch, J. V. Bell, Theodore C. Cook, J. W. Dalman, R. F. Darby, F. B. Ernt, George G. Floyd, W. R. Gravener, T. H. Hopkirk, D. T. Harris, L. E. Jones, R. E. Janney, T. D. Kelley, P. A. Martin, F. S. McNamara, A. H. Peycke, H. D. Richardson, G. F. Slaughter, W. S. Spieth, W. S. Stearns, J. H. Stuart, J. H. Tinker and W. G. Wallace. Spaces 149-151.

American Tool Works Company, The, Cincinnati, Ohio.—Fourteen-inch lathe, with complete tool room equipment; 24-in. heavy pattern lathe; 12-in. lathe with four-step cone head; 3-ft. and 6-ft. Triple-Purpose radial drills; 3-ft. high speed sensitive radial drill; 24-in. heavy service shaper. Represented by F. L. Stubenroth, J. C. Hussey, Robert Alter, L. S. Alter, H. W. Shatz, J. W. Barr and E. R. Conners. Spaces 57-59-61 63-65.

Anchor Packing Company, The, Philadelphia, Pa.—Packing; mechanical rubber goods; asbestos products. Represented by B. J. Miller, J. P. Landreth, A. G. Benson, J. D. Robb, W. R. Haggart, D. J. P. Murray, L. E. Adams and Frank S. Bulkley. Spaces 366-367.

Ashton Valve Company, The, Boston, Mass. Master Mechanic standard style locomotive muffled and open pop safety valves; locomotive, steam heat and air gages; quadruplex air brake gages; locomotive driving wheel quartering gage; standard test gages; weight gage testers; portable boiler test pump; wheel press recording gages; protected dial gages; locomotive whistles; three-speed air brake inspector's recording gages; air brake appliances; illuminated dial master pressure and pilot gages. Represented by E. F. Boyle, H. O. Fettinger, J. F. Gettrust, G. E .Knight, J. W. Motherwell and H. J. Tierney. Space 518.

Association of Manufacturers of Chilled Car Wheels, Chicago.—Standard 33-in. A. R. A. car wheels as follows; 650-lb. for 30-ton car; 700-lb. for 40-ton car; 750-lb. for 50-ton car; 850-lb. for 70-ton car. Represented by George W. Lyndon. Spaces 301-303.

Atkins & Co., E. C., Indianapolis, Ind.—"Silver" steel saws of all kinds; foundry plates; Kwik-Kut power hacksaw machines; metal band saw machines; Cantol wax belt dressing; machine knives. Represented by Edward Norvell, Lewis Okey and R. H. Hunter. Space 40.

Atlantic Hand Brake Corporation, Buffalo, N. Y.—Worm gear hand brakes. Represented by J. H. Weidemiller. Space 540.

Baker R & L Company, The, Cleveland, Ohio.—Three-wheel electric tractor; elevating platform trucks; three-way crane (locomotive type). Represented by Nathaniel Platt, M. A. Watterson, H. B. Greig and W. F. Hebard. Space 336.

Baldwin Locomotive Works, The, Philadelphia, Pa.—Oil-burning locomotive of the Santa Fe type built for the Southern Pacific Lines and equipped with superheater, feedwater heater and booster. Represented by G. Greenough, Charles Riddell, A. H. Ehle, A. S. Goble, S. McNaughton, Jr., and C. H. Gaskill. Space on exhibit track.

Barco Manufacturing Company, Chicago.—Power reverse gear; crosshead and shoes; metallic engine tender connections; metal passenger car steam heat connections; joints for locomotive piping; joints for roundhouse blower and blow-off; metal connections for stations and yards; automatic smokebox blower fittings; large joints for expansion lines. Represented by C. L. Mellor, A. S. Lewis, F. H. Stiles and W. J. Behlke, Jr. Space 641.

Barrett Company, The, New York.—Roofing; waterproofing; paving; creosoting. Represented by William S. Babcock and Walter Buehler. Space 621.

Bastian-Blessing Company, Chicago.—Space 707.

Beaudry & Co., Inc., Boston, Mass.—Working model of Beaudry hammer. Represented by A. Parsons. Space 209.

Besly & Co., Charles H., Chicago.—Pattern makers' grinder; taps. Represented by Edward P. Welles and Charles A. Knill. Space 108.

Bettendorf Company, The, Bettendorf, Iowa.—Bettendorf swing motion caboose car truck; 40, 50 and 70-ton Bettendorf T-section and U-section side frames; 40, 50 and 70-ton cast steel truck bolsters. Represented by J. W. Bettendorf, J. H. Bendixen, C. J. W. Clasen, K. M. Hamilton, E. J. Bettendorf, F. K. Shults and Peter P. Beck. Spaces 218-220-222.

Billingsley Company, The, P. L., Cincinnati, Ohio.—"Flexway" woodworking machine, with attachments for sawing, boring, routing and planing; rotary spoke shave and emery wheel. Represented by P. L. Billingsley. Space 165.

Bird-Archer Company, The, New York.—Polarized chemicals; Anti-foam; blow-off cocks; washout plugs; Harter circulator plate. Represented by P. B. Bird, C. A. Bird, L .F. Wilson, T. A. Peacock, John Barnes and J. A. McFarland. Space 31.

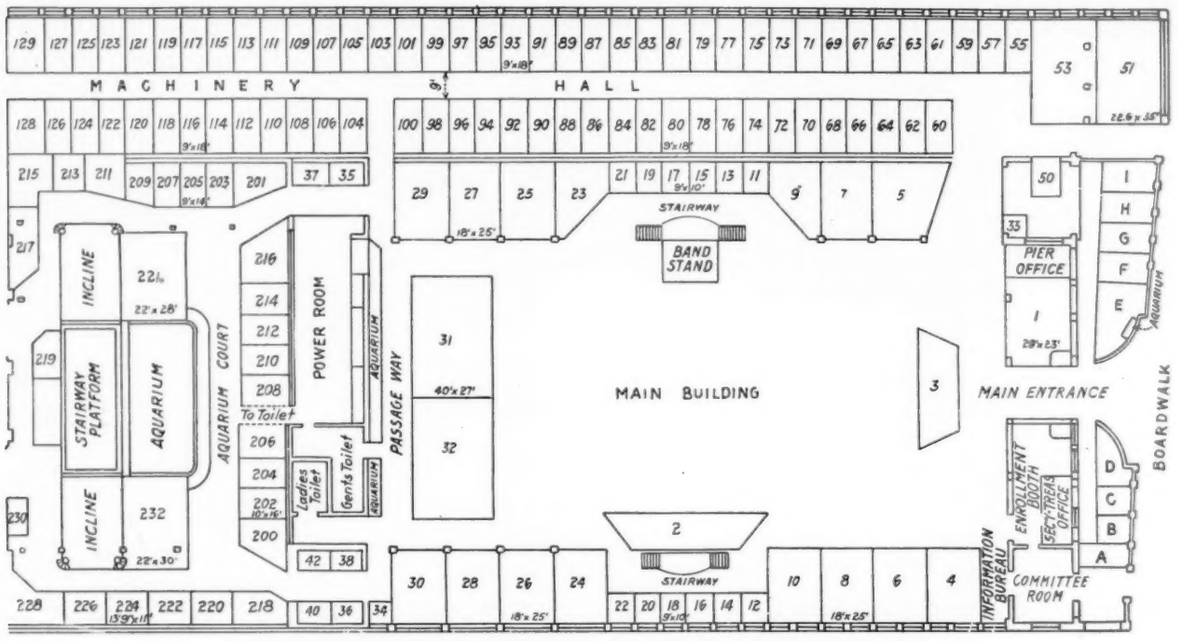
Black & Decker Manufacturing Company, The, Baltimore, Md.—Portable electric grinder; portable electric drill; electric valve grinder; electric screw driver; bench drilling stands. Represented by R. D. Black, H. G. Smith and G. R. Lundane. Space 217.

Blackall, Robert H., Pittsburgh, Pa.—Blackall ratchet brake lever; improved Lindstrom brake lever; Blackall ratchet. Represented by Robert H. Blackall, D. K. Coyle and Harris Potter. Space 627.

Boss Nut Company, Chicago.—Boss lock nuts. Represented by J. A. McLean, F. K. Shults, J. W. Coleman, J. W. Fogg, C. Beaumont, W. G. Willcoxson and T. W. Callahan. Spaces 370-371.

Bowser & Co., Inc., S. F., Fort Wayne, Ind.—Complete equipment for oil and gasoline storage at central oil houses; underground outfit for installation along the right-of-way. Represented by T. D. Kingsley, W. T. Simpson, E. M. Harshbarger and L. E. Porter. Space 28.

Bradford Draft Gear Company, New York.—Bradford rocker type draft gear; Bradford three-spring draft gear; Bradford draft arm; Bradford boltless truck column; Chambers throttle valve. Represented by Horace Parker, Floyd K. Mays, Harry F.



Arrangement of Exhibit Spaces at the Boardwalk End of the Pier

Lowman, Frank H. Clark, W. W. Rosser, W. A. McWhorter, H. C. Priebe, E. H. Smith, J. C. Keene, E. L. Nusz and E. J. Barnett. Spaces 554-555.

Brewster, Inc., Morris B., Chicago.—Packings for piston rods, valve stems and air pumps; Security wrist pin. Represented by Morris B. Brewster. Space 610.

Brill Company, The J. G., Philadelphia, Pa.—One 42-ft. 6-in. combination passenger and baggage gasoline rail car; standard steam car seat. Represented by C. J. McPherson and George Frey. Space G.

Brown & Co., Inc., Pittsburgh, Pa.—Samples of staybolt and engine bolt irons. Represented by J. Wallace Mitchell, L. E. Hassman and E. R. Mason. Space 530.

side frames; 120-ton Virginian Railway gondola car, equipped with Buckeye six-wheel trucks. Represented by J. G .Bower, F. J. Cooledge, G. A. Macpherson, S. P. Bush, G. T. Johnson, M. S. Simpson, E. W. Campion, J. C. Larsen and J. C. Whitridge. Spaces 603-605 and track exhibit in Philadelphia & Reading yards, foot of Mississippi avenue.

Bucyrus Company, South Milwaukee, Wis.—Spreader plows; railway wrecking cranes; excavating machinery; unloading plows. Moving picture films of equipment in operation. Represented by E. G. Lewis. Space 334.

Buffalo Brake Beam Company, New York.—Brake beams and brake beam parts. Represented by S. A. Crone, A. E. Crone,

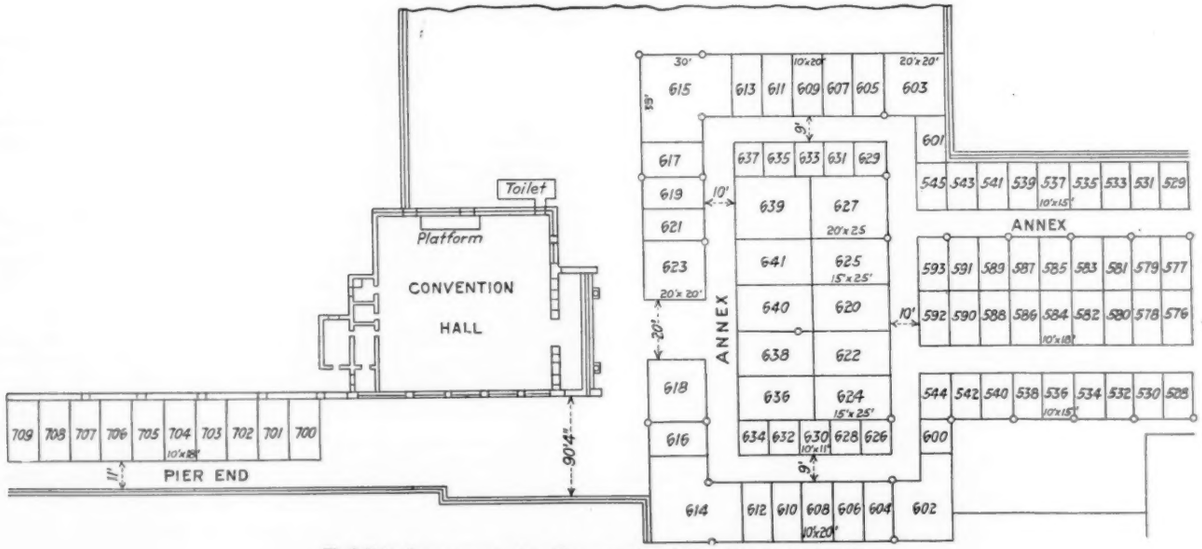


Exhibit Spaces at the Convention Hall End of the Pier

Brubaker & Bros. Company, W. L., New York.—Special boiler tools (taps). Represented by W. Searls Rose, J. A. W. Brubaker, R. F. Hosek and H. B. Marrison. Space 504.

Buckeye Steel Castings Company, Columbus, Ohio.—A. R. A. type "D" coupler and Major coupler; cast steel yokes, bolsters and

E. C. Farlow, E. Strassburger, A. Gordon Jones, C. R. Busch and E. F. Gladwell. Spaces 548-549.

Burden Iron Company, The, Troy, N. Y.—Staybolt iron, engine bolt iron, iron boiler rivets; hollow staybolts. Represented by John C. Kuhns. Space 219.

Burry Railway Supply Company, Chicago.—Side bearings and center plates. Represented by V. J. Burry and O. E. Quinton. Space 526.

Cambria Steel Company, Philadelphia, Pa.—See Midvale Steel & Ordnance Company. Spaces 590-591.

Camel Company, Chicago.—Full sized models of box car door fixtures; box car door locks; door starting and closing arrangements; automobile car door fixtures; steel doors for freight cars; door repair parts. Represented by P. M. Elliott, H. E. Creer, H. H. Hendricks, A. B. Wegener, B. D. Jones, Arthur Allan, W. W. Darrow. Spaces 532-534-536.

Carbo-Oxygen Company, Pittsburgh, Pa.—Oxy-carbo-hydrogen cutting and welding apparatus; carbo-hydrogen gas and carbo-oxygen gas. Represented by F. S. Austin and H. A. Wellings. Space A.

Carborundum Company, The, Niagara Falls, N. Y.—Carborundum refractories, including Carbofrax, brick, tile, muffles; refractory cements; Carborundum and Aloxite grinding wheels. Represented by C. E. Hawke, R. S. Marvin, Walter Meek, F. E. Gridley, J. W. Fraser and S. C. Courter. Spaces 582-583.

Carnegie Steel Company, Pittsburgh, Pa.—Engine truck wheel; freight and passenger car wheels; pair of 36-in. wheels which have given an aggregate of 581,139 miles of service under a passenger car. Represented by W. G. Clyde, John E. Woods, C. L. Wood, L. C. Bihler, N. B. Trist, C. Orchard, R. W. Steigerwalt, J. A. Ralston, G. R. Schreiner and R. L. Twitchell. Space 420.

Champion Railway Equipment Corporation, New York.—Universal car and hose coupler; standard flexible compound. Represented by A. A. Anderson, A. B. Bellwood, C. M. Kidd, J. H. Funk and W. R. Black. Space 368.

Chase & Co., L. C., Boston, Mass.—Goat brand mohair upholstery plush; Chase renovator for cleaning upholstery; Chase Leatherwove. Represented by H. T. Wight and W. P. Underhill. Space 10.

Chicago-Cleveland Car Roofing Company, Chicago.—Car roofs; carlines; pressed steel car parts. Represented by H. F. Finney, T. H. Williams, J. L. Stark, R. C. Munro, T. N. Russell, R. C. Dudley and F. A. Jacobs. Space 506.

Chicago Pneumatic Tool Company, New York.—Portable pneumatic and electric hammers; drills; air hoists; portable electric drills; spike driving, rail bonding and drilling devices; sand rammers; hose couplings. Represented by A. C. Andresen. Space 623.

Chicago Railway Equipment Company, Chicago.—Brake beams; brake beam supports; side bearings. Represented by E. B. Leigh, A. C. Moore, F. T. DeLong, G. N. Van Sweringen, E. E. Griest, R. J. Sheridan, E. A. LeBeau and E. G. Busse. Space 640.

Clark Company, West Pittston, Pa.—Retainer valve and brackets. Represented by E. L. Clark. Space 157.

Clark Car Company, Pittsburgh, Pa.—Photographs of 30-yd. extension side dump cars; catalogues. Represented by H. E. Chilcoat and R. L. Mason. Space 625.

Clark Tructractor Company, Buchanan, Mich.—Clark Truklift; tractor model of Clark Tructractor. Represented by Louis J. Schneider, A. S. Rampell and W. B. Eldred. Space 137.

Cleveland Car Specialty Company, Cleveland, Ohio.—Pressed steel carlines. Represented by J. A. Costello and A. B. Hummel. Space 374.

Cleveland Pneumatic Tool Company, The, Cleveland, Ohio.—Riveting and chipping hammers; air drills and grinders; sand rammers, sand hammers; core breakers; oscillating valve grinders; portable bench and lathe grinders; angle gears; Cleco air fittings; and seven types of Cleco pressure seated air valves; Bowes couplings. Represented by H. S. Covey, Arthur Scott, F. E. Schwarze, R. B. Van Norman, G. Gregory and C. D. Garner. Spaces 329-331-333-335.

Cleveland Steel Tool Company, The, Cleveland, Ohio.—Punches; dies; chisels; rivet sets. Represented by R. J. Venning, George L. Connelly, W. J. Devlin and W. F. Delaney. Spaces 153-155.

Cleveland Twist Drill Company, The, Cleveland, Ohio.—Reception booth. Represented by Harley G. Smith, John G. Ladrick and Harry P. Jenson. Space 224.

Cochrane-Bly Company, Rochester, N. Y.—Duplex universal vertical miller and shaper; metal sawing machine; automatic saw sharpening machine, all motor driven. Represented by W. H. Welch. Space 107.

Commonwealth Steel Company, St. Louis, Mo.—Models, drawings and illustrations of cast steel underframes, end frames, and four and six-wheel trucks for passenger-train cars; pilots; pilot beams; engine and tender trucks; cradles and trailer truck frames; tender frames; ash pans. Represented by H. M. Pflager, George E. Howard, B. V. H. Johnson, C. S. Shallenberger,

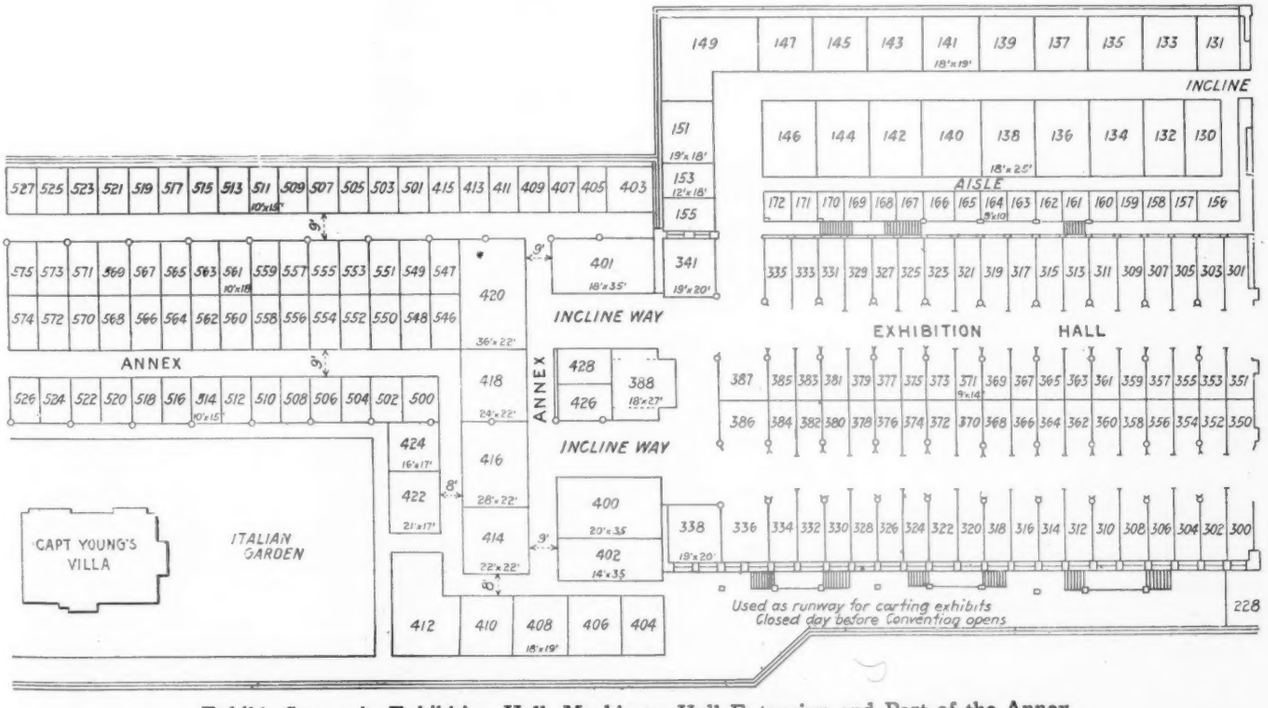


Exhibit Spaces in Exhibition Hall, Machinery Hall Extension and Part of the Annex

George H. Gibson, C. F. Frede, C. P. Whitehead and H. R. Bartell. Spaces 386-387.

Continental Works Company, Chicago.—Lucas car roof cement applied to various types of surfaces; test panels exposed to acids, brines, blow torch, etc.; graphic charts showing various applications of cement. Represented by Arthur B. Chapin, George Sutherland and H. T. Hutchinson. Space C.

Covington Machine Company, Inc., Covington, Va.—Hose dismantling and assembling machine; miniature of No. 6 punch; photographs of other machines. Represented by E. H. Archer, S. A. Patterson and Edgar H. Archer. Space I.

Craft, Inc., New York.—Cleveland light weight railroad inspection car. Represented by F. W. Edmunds, Albert J. Leonard and W. T. Manogue. Spaces 321-323.

Crosby Steam Gage & Valve Company, Boston, Mass.—Steam gages; safety, blow-off and globe valves. Represented by John J. McCormick and E. L. Taylor. Space 632.

Curtain Supply Company, The, Chicago.—Car curtains; Rex vestibule curtains; Rex automatic release handles; Rex opening shields and roller bearing hooks; Rex canvas and steel diaphragms, brass sash, weatherstripping and deck sash ratchets. Represented by T. W. Holt, Ross F. Hayes, Ralph Brown and T. P. O'Brian. Space 638.

Dale Machinery Company, Inc., New York.—Lassiter-Millholland model "B" horizontal staybolt machine; Nos. 2 and 6 Colburn heavy duty manufacturing drill presses; 42-in. new type Colburn heavy duty vertical boring and turning mill; 26-in. Betts Bridgeford heavy duty screw cutting lathe; modern chaser grinder. Represented by J. J. Dale, R. R. Lassiter, J. W. Blackford, H. W. Breckenridge, William Brown, M. D. Neady and Alfred Trosch. Spaces 95-97-99-101.

Damascus Brake Beam Company, Cleveland, Ohio.—Forged brake beam fulcrums and Brascott freight car ladders. Represented by C. D. Jenks. Space 559.

Davis Boring Tool Company, Inc., St. Louis, Mo.—Expansion car wheel and machine shop boring tools; expansion reamers; cutter grinding attachment; grinding arbors. Represented by O. L. Chapman and Burney Davis. Space 201.

Davis Brake Beam Company, Johnstown, Pa.—Davis solid truss brake beams for freight cars, passenger cars and locomotive tenders; pressed steel journal box lids. Represented by Frank J. Lanahan, George W. Fox, Charles F. Perkins, C. K. Stillwagon and W. E. Fowler, Jr. Space 625.

Dayton Pneumatic Tool Company, The, Dayton, Ohio.—Champion riveting hammers; new Dayton chipping and caulking hammers; jam riveters; hose couplings and accessories. Represented by L. B. Smyser, A. B. Clausen, A. B. Inness, George C. Towle and L. B. George. Space 324.

Dearborn Chemical Company, Chicago.—Scientific water treating preparations; No-ox-id rust preventive. Represented by Robert F. Carr, George R. Carr, Grant W. Spear, J. D. Purcell and W. H. Kinney. Spaces 6-8.

Detroit Lubricator Company, Detroit, Mich.—Bulls-eye locomotive lubricators; automatic flange oilers; air cylinder lubricators; transfer fillers; automatic exhaust nozzle covers. Represented by A. G. Machesney and C. H. Perrine. Spaces 205-207.

Detroit Twist Drill Company, Detroit, Mich.—Drills, reamers and milling cutters; "DD" drills. Represented by H. T. Scott, W. R. Starr, F. J. Smith and R. D. Winslow. Space 156.

Diamond Machine Company, Providence, R. I.—Heavy duty face grinder; type "C" surface grinder; pulley grinder; wet tool grinder; motor driven floor grinder; ball bearing disc grinder; Pull countershaft. Represented by George S. Squibb, Luther Burril and Morris Slepkow. Spaces 113-115-117.

Dickinson, Inc., Paul, Chicago.—Smoke jacks for enginehouses, cabooses, camp cars and small buildings; Aeolus roof ventilators for enginehouses and shops; cast iron exhaust head; model of modern enginehouse with smoke jacks and ventilators. Represented by A. J. Filkins, H. Knutson and K. E. Cates. Space 203.

Disston & Sons, Inc., Henry, Philadelphia, Pa.—Metal cutting circular saws and metal cutting band saws in operation; metal saws of all kinds, files and tools. Represented by Joseph L. Dorrington, L. M. Willard and Edward Ludy. Space 141.

Dixon Crucible Company, Joseph, Jersey City, N. J.—Graphite productions; silica-graphite paint; pencils; crucibles. Represented by L. H. Snyder, J. J. Tucker, William Ernst, W. A. Housten and H. A. Nealley. Space 24.

Dressel Railway Lamp & Signal Co., New York.—See F. H. Lovell & Co.

Duff Manufacturing Company, The, Pittsburgh, Pa.—Duff high speed ball bearing screw jacks, journal box jacks, car separator jack and car sill jack; genuine Barrett car and track jacks; drop forgings and trench braces. Represented by G. E. Anderson, E. A. Johnson, T. A. McGinley, C. A. Methfessel, W. G. Robb, C. N. Thulin and G. E. Watts. Space 401.

Eagle Manufacturing Company, Wellsburg, W. Va.—Seamless welded steel oilers and oil containers. Represented by S. O. Paull and J. B. Webb. Space 380.

Edgewater Steel Company, Pittsburgh, Pa.—Locomotive tires and rolled steel wheels. Represented by W. V. D. Wright, J. H. Baily, L. O. Cameron and C. H. Sherburne. Space 509.

Edison Storage Battery Company, Orange, N. J.—Storage battery cells cut away to show parts and construction; map showing railroads using Edison batteries; car lighting battery box with installation of Edison batteries; model of Railway Storage Battery car; seven-cell battery for signal service; five-cell battery for portable lighting; three, four and five-cell batteries for car lighting. Represented by F. D. Fagan, D. B. Mugan, A. S. Knox, D. C. Wilson, Paul Sutcliffe, R. Baird, W. F. Bauer, W. W. Coleman and J. A. Cassedy. Space 636.

Edna Brass Manufacturing Company, The, Cincinnati, Ohio.—Locomotive injectors, lifting and non-lifting; locomotive lubricators, hydrostatic and forced feed types; locomotive water column; cold water coal sprinkler; Reflex water gage. Represented by E. O. Corey, B. I. Kaufmann, D. B. Joseph, R. B. Buram, H. A. Glenn, F. S. Wilcoxen and W. W. Fetner. Space 308.

Edson Manufacturing Corporation, Boston, Mass.—Various styles of genuine Edson diaphragm pumps; special suction hose, couplings and strainers; improved diaphragms. Represented by J. W. Wickwire and W. S. Courtney. Spaces 564-565.

Edwards Company, Inc., The O. M., Syracuse, N. Y.—Window fixtures; trap doors; sash balances. Represented by O. M. Edwards, Sr., Harold Edwards, J. J. Edwards, E. F. Chaffee, C. H. Rockwell and A. J. Horgan. Spaces 527-529-531.

Electric Arc Cutting & Welding Company, Newark, N J.—Rivet cutting apparatus; welding and cutting apparatus; electrodes; supplies. Represented by C. J. Holslag, J. E. Gunning, J. I. Mitchell and E. J. Knapp. Space 37.

Electric Controller & Manufacturing Company, Cleveland, Ohio.—E. C. & M. control, consisting of push button operated automatic starting compensators and across-the-line starting switches, with thermal overload relays; direct-current automatic starters and machine tool controllers, contactors, relays, etc. Represented by R. G. Widdows and H. K. Hardcastle. Space 85.

Electric Service Supplies Company, Philadelphia, Pa.—Golden Glow locomotive headlights, reflectors and floodlights; Keystone turbo-generators, headlight switches, classification and marker lights, gage lights, rear tender lights and roundhouse lighting fixtures. Represented by Charles J. Mayer, A. H. Englund, J. W. Porter, J. R. McFarlin, L. A. Darling, T. M. Childs, W. H. Smaw and H J. Graham. Spaces 312-314.

Electric Storage Battery Company, Philadelphia, Pa.—Exide body hung axle light equipment with Exide battery in operation; Exide batteries "A" and "B" for railway signal service, industrial trucks, starting and lighting equipment for automobiles, and radio service. Represented by H. B. Marshall, J. L. Woodbridge, T. L. Mount, F. G. Beetem, H. E. Hunt, R. I. Baird, H. M. Beck, W. C. Hooven, George Hayes, H. S. Mills, M. C. Pope, Jr., A. W. Pierce, P. G. Downton, L. E. Lighton and H. W. Beedle. Space 624.

Elvin Mechanical Stoker Company, New York.—Elvin mechanical stoker. Represented by A. G. Elvin, E. W. Englebright, A. B. Fahnestock, F. H. Elvin, H. D. Eckerson and H. J. Charles. Space 146.

Elwell-Parker Electric Company, Cleveland, Ohio.—Type CK crane platform truck; TL tractor; EG elevating platform truck; truck power plant; Elwell-Parker combination trailer-platform. Represented by Lucian C. Brown, George W. Brown, Charles C. Dietz, W. C. Kershaw, C. E. Cochran, F. B. Neely, R. C. Howell, C. B. Cook and J. M. Brown. Space 341.

Emery, E., Pittsburgh, Pa.—Self-locking brake shoe keys; Standard machined taper pins and keys, and full machined channel pins manufactured by the Standard Horse Nail Company. Represented by E. Emery. Space 19.

Enterprise Railway Equipment Company, Chicago.—Models of various types of hopper and gondola cars; door operating mechanisms for load discharging cars; Ingoldsby door latches; grain doors and grain discharge for box cars; combination hingebutt and hopper brace castings for hopper cars. Represented by Argyle Campbell, A. E. Zimmer and W. L. Gunnison. Spaces 584-585.

Everlasting Valve Company, Jersey City, N. J.—Flatplug valve for enginehouse service; Everlasting valve for locomotive boiler off; Everlasting tandem valve for power plant blow-off; Everlasting tender tank valve. Represented by John H. Allen and Edward N. Corning. Space 17.

Ewald Iron Company, Louisville, Ky.—Solid and hollow staybolt iron. Represented by Baylor Hickman, G. O. Boomer, S. F. Sullivan, J. P. Bourke, E. V. Shackleford and R. F. Kilpatrick. Space 535.

Fireboard Company, Boston, Mass.—Bullseye dust guards. Represented by William E. Eaton and Midgley & Borrowdale. Space 42.

Fire-Gun Manufacturing Company, Inc., New York.—Fire-Gun carbon tetrachloride extinguishers from one quart to one and a half quart capacities; Fire-Gun type B soda and acid extinguisher, 2½-gal. capacity. Represented by Henry L. Heulings and Harry E. Tunnell. Space B.

Flannery Bolt Company, Pittsburgh, Pa.—Tate flexible staybolts; F B C welded flexible staybolts; Realock nuts and grease cups; Flannery rigid stays, taper head crown stays and button head stays. Represented by J. Rogers Flannery, E. S. Fitzsimmons, W. M. Wilson, R. W. Benson, F. K. Landgraf, M. M. McCallister and Ethan I. Dodds. Spaces 592-593.

Ford Company, J. B., The, Wyandotte, Mich.—Wyandotte metal cleaner, with equipment showing how metals and repair parts are cleaned with it. Represented by B. N. Goodell, G. E. Gordon, W. E. Ratz, G. J. Lawrence, C. S. Thompkins, W. P. Scott and H. M. Green. Space 519.

Forged Steel Yoke Corporation, Chicago.—Forged steel draft yoke. Represented by LeRoy Kramer, C. R. Naylor and A. J. Canfield. Space 572.

Fort Pitt Malleable Iron Company, Pittsburgh, Pa.—Freight car and locomotive castings; dump cars; tank car fittings. Represented by Frank J. Lanahan, J. S. Lanahan, E. H. Holmes, Joseph H. Kumer and P. S. Aaron. Space 625.

Fort Pitt Spring & Manufacturing Company, Pittsburgh, Pa.—Locomotive and car elliptic and coil springs; springs for industrial concerns. Represented by William McBride, Fred A. Meckert, Robert L. Leitch and Lewis O. Cameron. Space 550.

Foster Company, The Walter H., New York.—Improved turning and threading machine equipped for radial, crown and side stays, turning and threading from forged blanks; semi-automatic valve finishing machine for triple and other valves used on air brake equipment. Represented by Walter H. Foster, J. A. Eden, Jr., and H. L. Kenah. Spaces 87-89.

Four Wheel Drive Auto Company, Clintonville, Wis.—FWD railway two-car unit; seating capacity 52 passengers, with baggage, express and mail compartments about 88 sq. ft. Represented by W. A. Olen, H. B. Dodge, C. J. Cassese, H. M. Daniels, L. H. Jones, R W. Pachaly, George E. Reynolds and A. L. Foote. Space 35.

Franklin Railway Supply Company, New York.—No. 8 and No. 9 firedoors; driving box spreader; automatic wedge; Precision reverse gear; booster; lateral motion device; Ragonnet reverse gear; McLaughlin joint and ball joint models; Radial buffer and Unit safety bar; Unit safety bar. Represented by J. S. Coffin, Samuel G. Allen, H. F. Ball, W. H. Coyle, J. L. Randolph, H. M. Evans, W. T. Lane, Paul Weiler, Paul Willis, J. A. Talty, M. H. Roberts, F. R. Peters, C. W. F. Coffin, J. L. Bacon and C. J. Burkholder. Spaces 414-416-422-424.

Frost Railway Supply Company, The, Detroit Mich.—Harvey friction spring gears; Detroit metal weather strip. Represented by Harry W. Frost, George A. Cooper and George L. Harvey. Space 560.

Futrell Coupler Company, Streator, Ill.—All-metal train pipe connector. Represented by Thomas J. Futrell, John H. Haseroth and W. H. Crowell. Space 230.

Galena-Signal Oil Company, Franklin, Pa.—Reception booth. Represented by L. J. Drake, L. F. Jordan, W. A. Trubee, W. P. Wescott, G. L. Morton, W. J. Walsh, J. E. Linahen, T. J. Powell, P. G. O'Hara, R. P. Birtcil, C. W. Hochette, G. E. McVicar, W. F. Walsh, P. H. Stack, W. O. Taylor, D. L. Eubank, E. G. Johnson, Charles McNair, J. S. Brown, S. S. Shields, J. W. Bunn and J. C. O'Connor. Space 32.

Garlock Packing Company, The, Palmyra, N. Y.—Packings for locomotive throttles, air pumps, power reverse gears, shop machinery, and slip, ball and expansion joints, boiler and pipe flange gaskets; rubber pump valves. Represented by W. G. Cook, Phil Arnold, C. W. Sullivan, H. J. Ramshaw, R. J. Hinkle and P. D. Miller. Space 508.

Geist Manufacturing Company, Atlantic City, N. J.—Wiederwax compressed air or steam non-carbonizing crude oil burners; Wiederwax non-carbonizing kerosene oil torches; Wiederwax preheater for acetylene welding. Represented by Carlton Geist, P. E. Wicke and A. O. Leeds. Space 702.

General Electric Company, Schenectady, N. Y.—Various applications of industrial control apparatus in operation; semi-automatic electric arc welding equipment in operation. Represented by J. G. Barry, E. P. Waller, F. S. Hartman, A. H. Armstrong, C. K. West, John Roberts, C. Dorticos, W. J. Clark, C. F. Lawrence, R. S. Bennett, J. J. Liles, D. K. Frost, C. H. Williams, F. P. Jones, L. W. Shugg, P. O. Noble, R. D. Reed, C. W. Kenyon, John Eaton and C. C. Peirce. Spaces 119-121-123-125-127-129.

Giessel Company, Henry, Chicago.—North Pole sanitary drinking fountains; water filters for dining cars. Represented by Arthur W. Barth, Frank N. Grigg, S. W. Midgley, C. H. Kadie and C. G. Elliott. Spaces 40-42.

Gill Railway Supply Company, Peoria, Ill.—Grisco cooling compound; emergency hose clamp. Represented by S. S. Pinkney, E. H. Hartenstein and A. F. Buescher. Space 325.

Gold Car Heating & Lighting Company, Brooklyn, N. Y.—Vapor and other systems of car heating; automatic temperature regulation for railway cars, buildings, etc.; pressure regulators; ventilators. Represented by Edward E. Gold, E. B. Wilson, A. B. Strange, F. O. Bailey, J. O. Brumbaugh, F. R. Cooper, F. W. Dearborn, W. J. Roehl, Allen Sheldon, F. H. Smith and A. D. Stuver. Spaces 350-353.

Gould Coupler Company, New York.—Couplers; truck bolsters; truck side frames; journal boxes, slack adjusters; friction draft gears; electric car lighting equipment with batteries; locomotive headlight generator. Represented by Charles A. Gould, W. F. Richards, W. F. Bouche, G. B. Young, W. B. Osborne, M. R. Shedd, D. C. Davis, G. R. Berger, G. F. Collins, C. W. Gould, W. H. Sauvage, J. W. Reifsnyder, H. C. Johnstone, P. H. Simpson, William Garstang, W. L. Kraemer and F. J. Beard. Space 221.

Gray Company, G. A., Cincinnati, Ohio.—Gray maximum service planer. Represented by August Marx, Tell Berna and Phillip Leisinger. Space 51.

Griffin Wheel Company, Chicago.—Chilled iron car wheels. Represented by C. K. Knickerbocker, G. D. Casgrain, A. A. Hale, F. B. Flinn, J. L. Grant and E. T. Cassedy. Space 620.

Grip Nut Company, Chicago.—Grip lock nuts; Grip locomotive nuts; Grip unit and holding nuts. Represented by W. E. Sharp, A. B. Chadwick, H. E. Passmore, Albert Roberts, B. R. Radcliffe, H. J. Tierney, J. B. Whitenack, J. E. Weatherford, C. S. Carter, C. W. Cross and W. R. Richards. Space 142.

Hagy Waste Works, The J. Milton, Philadelphia, Pa.—Wool journal box and armature packings; cotton wiping and polishing

waste; wiping and polishing cloths. Represented by Ralph L. Hays, J. Milton Hagy and H. P. Ogden. Space 311.

Hale & Kilburn Corporation (American Motor Body Company, successor), Philadelphia, Pa.—Car seats, steel doors; mouldings. Represented by R. D. Day, H. L. Beyer, W. M. Swope, H. R. Rochester, A. F. Old, J. B. Kilburn, W. L. Jefferies, E. A. Thornwell and W. D. Jenkins. Spaces 408-410.

Hall Air Lock & Railway Supply Company, Chicago—Safety pocket coupler; continuous rail manganese frog; one-piece guard rail. Represented by B. A. Johnson and J. J. Connors. Space 133.

Hall Draft Gear Corporation, Watervliet, N. Y.—Friction draft gears; cast steel yokes. Represented by C. W. Sherman, J. M. Hall, G. H. Gordon and E. C. McDowell. Space 372.

Hammett, H. G., Troy, N. Y.—Metallic piston rod and valve stem packing; locomotive bell ringers; triple valve bushing rollers. Represented by H. G. Hammett and A. O. Van Dervort. Space 512.

Hanna Locomotive Stoker Company, The Cincinnati, Ohio.—Improved Hanna locomotive stoker, type H-2. Represented by W. T. Hanna, C. D. King and G. D. Peverall. Space 139.

Harrington, Son & Co., Inc., Edwin, Philadelphia, Pa.—Chain hoist; I-beam travelers; multiple spindle drill. Represented by Roger Sherron, A. M. Harrington and W. J. Somerset. Space 143.

Hartford Tap & Gauge Company, Hartford, Conn.—Taps; gages; thread milling machine samples; spline milling machine samples; vertical milling machine samples; forgings. Represented by Joel W. Johnson. Space H.

Heald Machine Company, The, Worcester, Mass.—Rotary surface grinding machine; cylinder grinding machine; two styles of internal grinding machines. Represented by J. N. Heald, S. T. Massey, A. R. Sleath and J. L. Moran. Spaces 69-71 .

Hendey Machine Company, Torrington, Conn.—Lathe and shaper. Represented by E. E. L. Taylor and P. A. Rebok. Spaces 109-111.

Heywood-Wakefield Company, Wakefield, Mass.—Coach seats in various upholsterings, special exhibit showing stages of upholstery; motor-driven reversing mechanism. Represented by Bertram Berry, Frank N. Grigg, Edward Buker, C. G. Elliott, W. E. Foreman, E. F. Boyle, G. E. Cornwall, C. A. Van Derveer and E. Copeland Lang. Space 520.

Howell Electric Motors Company, Howell, Mich.—Polyphase induction motors; sectional motor showing detailed construction. Represented by Charles F. Norton, H. N. Spencer and O. A. Reed. Space 161.

Hunt-Spiller Manufacturing Corporation, South Boston, Mass.—Locomotive parts made of Hunt-Spiller gun iron: cylinder bushings and packings; solid pistons; piston bull rings; piston valve bushings and packing; tee rings; crosshead shoes; knuckle pin bushings for freight service; air pump bushings, driving boxes; pedestal shoes and wedges; eccentrics and eccentric straps. Represented by W. B. Leach, J. G. Platt, F. M. Weymouth, V. W. Ellet, A. B. Root, Jr., E. J. Fuller, C. L. Galloway and F .B. Hortman. Spaces 562-563.

Hutchins Car Roofing Company, Detroit, Mich.—Model of Hutchins all-steel dry lading roof; Hutchins channel steel ends for box and open top cars; Hutchins uncoupling device; model of Burnett reinforced box car ends. Represented by F. C. Dunham, M. F. Ryan, C. F. Pape, A. R. Wilson, J. F. Comee and W. D. Thompson. Space 616.

Hyatt Roller Bearing Company, New York.—Large aluminum model showing operating details of Hyatt roller bearings; glass mounted Hyatt bearings showing lubrication features; Hyatt bearings for railway cars, baggage wagons, trucks, locomotive turntables, machine tools, gasoline-propelled cars, hand cars and power transmission lines. Represented by D. Gleisen, P. C. Gunion, W. B. Wachtler, H. K. Porter, W. L. Iliff, and J. F. McGuinness. Space 4.

Illinois Steel Company, Chicago.—Track spikes and bolts; screw spikes; rail joint; tie plates. Represented by C. B. Friday, Grant Monk and C. R. Moffatt. Space 420.

Independent Pneumatic Tool Company, Chicago.—Complete line of Thor pneumatic and electric tools for railway use, including latest developments. Represented by John D. Hurley, R. S. Cooper, R. T. Scott, Adolph Anderson, H. F. Keller, A. L. Schuhl and W. H. Rosevear. Spaces 556-557.

Individual Drinking Cup Company, Inc., Easton Pa.—Dixie penny cup vending machine and cups; Dixie cup dispensing machine for parlor cars; Dixie cups and silver holders for club and dining car use; cloth towels and towel vendors. Represented by A. R. Lillicrapp and M. E. Morrison. Space 373.

Ingersoll Milling Machine Company, Rockford, Ill.—Ingersoll slabbing and channeling cutters; motion pictures of Ingersoll horizontal spindle and vertical adjustable rotary milling machines milling locomotive rods. Represented by A. A. Braid. Spaces 87-89.

Ingersoll-Rand Company, New York.—Air compressor; pneumatic riveting hammers; chipping hammers; close-quarter drills; staybolt tapping machines; motor hoists; grinders; wire brush cleaning machines and jam riveters. Represented by George A. Gallinger, W. A. Johnson, J. F. Kroske, L. W. Schnitzer, J. R. Randle and George C. Williams. Space 53.

International Motor Company, New York.—Mack rail car leading truck; rear axle; rubber shock insulated spring suspension; motor and transmission parts. Represented by E. M. Post, Jr., R. A. Hauer and R. M. Newbold. Space 326.

International Signal Company, The, New York.—Webb automatic train stop. Represented by Jean F. Webb, Jr. Space F.

Inter-State Safety Appliance Company, Inc., Norristown, Pa.—Safety attachment for freight car hand brakes. Represented by Vincent M. Haas, Irvin F. Kershner and William Wagenhorst. Space on exhibit track.

Jacques, H. W., Philadelphia, Pa.—Shovels, scoops, spades, railroad tin and galvanized ware; locks of all kinds for railroad use. Represented by H. W. Jacques, Harold Cunningham and C. H. Gibbs. Spaces 328-330.

Jenkins Brothers, New York.—Brass globe, angle, gate and Y-blow-off valves; mechanical rubber goods; Selclo blower valve, marine, rapid action valve and air gun. Represented by B. J. Neely and George Royal. Space 317.

Johns-Manville, Inc., New York.—Roofing, building and waterproofing materials; asbestos shingles; J-M industrial floorings; Transite and ebony asbestos wood; Transite asbestos wood smoke jacks and ventilators; pipe coverings; high temperature and asbestos cements; locomotive boiler lagging; passenger refrigerator and tank car insulations; spiral locomotive pipe insulation; power reverse gear packing sets; J-M air brake cylinder expander rings; steam traps; brake band lining; asbesto-metallic friction brake blocks; friction tapes and splicing compounds; "Success" fire extinguishers; packings and gaskets. Represented by J. E. Meek, G. A. Nicol, J. C. Younglove, P. C. Jacobs, J. H. Trent; C. E. Murphy, H. G. Newman, F. J. Horne, R. A. Hamaker, H. Flannagan and George Christenson. Spaces 580-581.

Johns-Pratt Company, The, Hartford, Conn.—"Vulcabeston" air pump packing sets, J-P combination air pump packing sets, Mallet compound locomotive packing, C-C locomotive throttle valve packing, red fibre sheet packing, molded union washers, pump valves, rope packing and asbestos groove packing; Noark cartridge enclosed fuses; Noark cutout bases. Represented by Hudson Dickerman. Space 708

Johnson Bronze Company, New Castle, Pa.—Small brass castings; bronze bushings; Babcock water glass protector. Represented by F. H. Babcock. Space 528.

Joliet Railway Supply Company, Chicago.—Huntoon brake beams and truck bolsters; Joliet brake beams and journal boxes. Represented by C. A. Carscadin, James E. Simons, Hamilton Vose, Jr., and Charles Benz. Space 611.

Jones & Laughlin Steel Company, Pittsburgh, Pa.—Nails, wire and wire products; hot rolled sections; tin and black plate tubular products; beams, channels and angles; spikes and concrete reinforcing bars; woven wire fencing. Represented by A. A. Wagner, J. D. Allen, E. D. Batcheler, R. T. Rowles, Boyden Kinsey, Roland Gerry, G. C. Fogwell, C. W. Gage, R. M. Kilgore and T. G. Roberts. Spaces 409-411.

Joyce-Cridland Company, The, Dayton, Ohio.—All kinds of lifting lowering, pushing, pulling and traversing jacks. Represented by W. F. Bippus, C. D. Derby, A. S. Beattys, R. L. Skidmore, W. I. Clock and H. Brock. Spaces 607-609.

Keller, Inc., William H., Grand Haven, Mich.—Pneumatic riveting, chipping, calking, scaling, flue beading and staybolt riveting hammers; portable pneumatic drills and wood boring machines; pneumatic sand rammers, holders-on, rivet busters, jam riveters, etc. Represented by W. F. Delaney, W. J. Devlin, J. C. Campbell, C. W. Gellinger and L. H. Olsen. Spaces 153-155.

Kerite Insulated Wire & Cable Company, The, New York.—Insulated wires and cables. Represented by B. L. Winchell, Jr., Azel Ames, P. W. Miller, J. W. Young, J. A. Renton, R. E. Butrick, W. H. Fenley, E. L. Adams, J. A. Hamilton and Carl Reeb. Spaces 523-525.

Key-Bolt Appliance Company, Orchard Park, N. Y. Space 162.

Keyoke Railway Equipment Company, Chicago.—Murray all cast steel friction draft gear and several designs of cast steel coupler yokes. Represented by George C. Murray and R. J. Cook. Space 309.

King Pneumatic Tool Company, Chicago, Ill.—King molybdenum steel sleeve valves for riveting hammers; King molybdenum steel riveting and chipping hammers; King molybdnum steel rivet cutters; King rivet cutter chisels; King rivet sets, hose couplings and accessories; King electric drills. Represented by George A. Barden, H. O. King, H. A. Torson, W. H. S. Bateman, C. E. Walker and J. E. Otis, Jr. Spaces 375-377.

Landis Machine Company, Waynesboro, Pa.—Four-inch Landis pipe threading and cutting machine; 1¼-in. Landis double-head pipe and nipple threading machine; Landis chaser grinder; five sizes of new type of Landis automatic die heads. Represented by C. F. Meyer, C. N. Kirkpatrick, F. C. Delcher, G. A. Middower and W. F. Ruppert. Spaces 79-81-83.

Laughlin-Barney Machinery Company, Pittsburgh, Pa.—New tube shearing machine. Represented by Harry Barney, W. E. Amberg, T. A. Oakley and H. C. Watson. Space 705.

Lehman Machine Company, St. Louis, Mo.—Twenty-two inch geared head lathe. Represented by L. A. Carter and P. Lehman. Space 92.

Lehon Company, The, Chicago.—Mule-Hide plastic car roofiing; canvas car roofing; insulating paper; roll roofing; insulating fabric; asphalt shingles; miniature car model. Represented by Tom Lehon, John Eipper, F. T. Carpenter and E. A. Leonard. Space 18.

Lewis-Shepard Company, Boston, Mass.—Jacklift elevating truck; Lewis-Shepard "stacker" self-loading warehouse trucks; platforms for elevating trucks. Represented by G. E. Squier and J. H. Burwell. Space 302.

Libbey Glass Manufacturing Company, The, Toledo, Ohio.—High pressure gage and lubricator glasses; bulls-eye glasses; reflex gage glasses; lantern globes and lenses; battery jars. Represented by J. A. Carson. Spaces 304-306.

Liberty Manufacturing Company, Pittsburgh, Pa.—Liberty locomotive tube cleaners; Lagonda locomotive tube cleaners; new type superheater flue cleaner. Represented by H. A. Pastre and W. A. Darrow. Space 131.

Loco Light Company, The, Indianapolis, Ind.—Headlight turbogenerator in operation; headlight case. Represented by H. H. Tomlinson. Space 202.

Locomotive Firebox Company, Chicago.—One full-sized firebox with two complete Nicholson thermic syphons installed; one working model demonstrating circulation features and the other advantages gained by use of Nicholson thermic syphons. Represented by John L. Nicholson, Leslie R. Pyle, C. M. Rogers and Harry Clewer, Jr. Spaces 382-383-384-385.

Locomotive Stoker Company, Pittsburgh, Pa.—Full size type "D" Duplex stoker and one-third size model; slope sheet coal pusher. Represented by W. S. Bartholomew, J. J. Byrne, O. B. Capps, W. G. Clark, A. C. Deverell, H. B. Gardner, J. J. Hannahan, N. M. Lower, L. V. Stevens, A. L. Whipple, A. N. Willsie and H. C. Woodbridge. Spaces 403-405-407.

Logan Iron & Steel Company, Philadelphia, Pa.—Reception booth. Space 319.

Long, Jr. Company, Chas. R., Louisville, Ky.—Samples of railway paints, paint panels; paint films. Represented by Charles R. Long, Jr., Harry Vissering, G. S. Turner, J. M. Monroe, J. S. Lemley, W. H. Heckman and Samuel W. Russell. Space 575.

Lovell & Co., F. H., Arlington, N. J.—Lighting equipment for locomotives, cars and maintenance of way; switch classification, marker, signal and bridge lamps. Represented by A. D. Hobbie, F. W. Dressel, L. L. Pollak, H. S. Hoskinson and B. P. Claiborne. Spaces 631-633.

Lowe Brothers Company, Dayton, Ohio.—Red lead lute; Metalcote; signal enamel; varnishes; freight car paints. Represented by J. A. McFarland, E. T. Wade, George A. Barden, Langley Ingraham, R. L. DeArmond, R. H. Blackall. H. R. Potter and D. K. Coyle. Space 629.

Lunkenheimer Company, The, Cincinnati, Ohio.—Valves, lubricators, oil and grease cups and other engineering appliances. Represented by W. Morgan Hood, W. W. Beal, Andrew Lauterbach and Howard J. Evans. Spaces 313-315.

MacRae's Blue Book Company, Chicago.—MacRae's Blue Book. Represented by Thomas H. MacRae, D. N. Peirce, W. F. Miller and F. L. McCabe. Space 22.

McCabe Manufacturing Company, Lawrence, Mass.—Working model flanging machine with flanged flue sheets, heads and car parts. Represented by red H McCabe and Hugh McCabe. Space 310.

McConway & Torley Company, The, Pittsburgh, Pa.—Car couplers; quadruple shear yokes; uncoupling arrangements for passenger couplers. Represented by William McConway, Jr., Stephen C. Mason, I. H. Milliken, J. J. Hughes, W. H. Graul and Robert Huff. Spaces 501-503-505.

Machinery, New York.—Engineering publications as follows: Machinery; Machinery's Handbook, Encyclopedia, Books on Shop Practice, Library for Machinists, Library for Toolmakers, Library for Designers and Draftsmen, Dollar Books and Fifty Cent Books; exhibit of machine tool advertising. Represented by Erik Oberg, J. N. Wheeler and Victor Brook. Space 360.

Madison-Kipp Corporation, Madison, Wis.—Locomotive lubricators. Represented by Thomas E. Coleman and William B. Wheeler. Space 36.

Mahr Manufacturing Company, Minneapolis, Minn.—Mahrvel rivet forges, torch, outfits, babbitt furnaces, spring furnaces, calorizors, safety automatic shut-off valves and blast gates; Mahrvac torch. Represented by W. M. Horner, W. G. Barstow, R. B. Ecker, W H. White and J. L. Edwards. Space 134.

Main Belting Company, Philadelphia, Pa.—Complete car lighting belt, belting and belt fasteners. Represented by H. W. Lyndall. Space 234.

Manning, Maxwell & Moore, Inc., New York.—Hancock inspirators; Hayden & Derby injectors, ejectors, high pressure valves and oil cups; Ashcroft steam and hydraulic gages; Consolidated safety valves; Tabor engine indicators; Putnam double axle lathe, 54-in. vertical boring mill, 48-in. car wheel borer, and 26-in. by 14-ft. traverse shaper; two types of Woodward & Powell 24-in. crank planers; Columbia 32-in., 24-in. and 16-in. shapers; Snyder 25-in. and 36-in. vertical drills; National wedge grip heading and forging machine, automatic hammer header, double staybolt cutter, and die sharpener; electric rivet header; Cone Automatic Machine Company's 3½-in. screw machine. Represented by J. M. Davis, P. M. Brotherhood, H. D. Carlton, E. M. Moore, John F. Schurch, B. T. Williston, C. H. Graesser, Joseph Wainwright, T. S. Stephens, John Dunn, W. C. Chapman, J. S. Whalen, F. M. Maley, Norman Allderdice, H. J. Hair, E. F. Winship, R. S. Dean, L. E. Brayton, L. A. Gluckler, E. D. Garfield, Joseph Bush, H. E. Eddy, W. H. Williston, J. Soule Smith, C. L. Brown, P. H. Ryan, J. C. Blanton, James Briscoe, Phillip G. Darling, E. B. Crocker and O. W. Heise. Spaces 60-86, inclusive.

Massachusetts Mohair Plush Company, Boston, Mass.—Mohair plush for car seats. Represented by W. W. Melcher and A. B. Mason. Spaces 635-637.

Mercury Manufacturing Company, Chicago.—Mercury twin-three tractor; Mercury freight house trailer; motion pictures of "The Trackless Train" operating in railroad passenger and freight terminals. Represented by C. H. Clare, J. S. Kumkle and L. J. Kline. Space 404.

Merrill Company, Chicago.—Merco Nordstrom plug valve. Represented by H. P. MacGregor, Thomas Jabine and Confort E. Brown. Space 164

Metal & Thermit Corporation, New York.—Materials, appliances and samples of Thermit welding, including a new application of Thermit welding to locomotive superheater tubes; specimen of a section cut through weld in a large crank shaft. Represented by W. R. Hulbert, F. W. Cohen, J. H. Deppeler, H. D. Kelley and H. S. Mann. Space 136.

Midgeley & Borrowdale, Chicago.—Water coolers and filters; weather-stripping; dust guards; steel and malleable iron castings. Represented by S. W. Midgeley. Space 42.

Midland Company, The South Milwaukee, Wis.—Midland, Wilbern and anti-friction baggage car door hangers; safety stop for baggage car doors. Represented by C. P. Nourse and I. W. Davis. Space 332.

Midvale Steel & Ordnance Company, Philadelphia, Pa.—New Symington wrought steel side frame; complete truck with wrought steel side frame; reproduction of Knobbling furnace for making charcoal iron with samples of lump bloom pile, etc., showing different stages in manufacture of charcoal iron; solid rolled steel pistons and piston center; rolled steel wheels; tire for cushion wheels for railway auto-buses; stone ties from old Portage Railroad with cast iron rail chair and bolts, and section of English rail rolled about 1832. Represented by William Aertsen. H. E. Rowe, James Connor, H. W. Hibsham, R. E. Sharp, H. P. Hubbell, R. E. Dexter, J. C. C. Holding, Stuart Hazelwood, Ward Miller, L. B. Morris, Walter Smyth, A. C. Howell G. A. Richardson. Spaces 588-589.

Milburn Company, The Alexander, Baltimore, Md.—Acetylene welding and cutting equipment, including acetylene welding generators; welding torches; cutting torches; combination welding and cutting torches; pre-heaters; portable carbide lights for railroad, repair and construction work. Represented by A. F. Jenkins, C. R. Pollard, C. E. Mitchell, E. P. Boyer, G. B. Malone and F. Knecht. Space 217.

Milwaukee Tank Works, Milwaukee, Wis.—Hand pump for use at section tool houses; lubricating and paint oil battery tanks and pumps; power driven automatic barrel filling pump; waste saturating tank and pump. Represented by Leo Davis and Thomas E. Chatto. Space 376.

Miner, W. H., Chicago.—Friction draft gears; side bearings; safety hand brakes; refrigerator car door fasteners; drawbar yokes. Represented by A. E. Biddle, Bradley S. Johnson, G. Q. Lewis, J. H. Link, C. F. McCuen, J. R. Mitchell, J. F. O'Connor, W. E. Robertson, H. F. Schwartzenberg, Keith Williams, A. P. Withall and George A. Johnson. Spaces 586-587.

Minich Railway Appliance Corporation, Philadelphia, Pa.—Super Safety hand brake and parts. Represented by R. H. Minich, Harry E. Karr, Alex L. Cummings, Walter J. Burns, N. S. Kenney, J. Bayard Embick, W. Harding Davis and John L. Cornog. Space 369.

Morton Manufacturing Company, Chicago.—Buffing mechanism for top of vestibule diaphragm face plate; canvas and steel vestibule diaphragms with hoods and attachments; vestibule curtains and fixtures; folding tail gates; safety treads for steps; step boxes for passenger cars; brake steps for freight cars; steel doors and Anti-Pinch door shields; window curtains and fixtures; car window weatherproofing; steel flooring; pressed and drawn steel shapes of all kinds. Represented by H. U. Morton, C. D. Morton, William Wampler, G. H. Ord, H. B. Chamberlain, C. A. Koenig and F. N. Grigg. Spaces 568-569.

Morton Manufacturing Company, Muskegon Heights, Mich.—Special railroad draw-cut shaper for machining driving boxes, with attachments for planing shoes and wedges, rod brasses and driving box shells; photographs of draw-cut cylinder planer and boring machine. Represented by Henry E. Morton and George F. Goble. Space 50.

Nathan Manufacturing Company, New York.—Injectors; sight feed lubricators; mechanical lubricators; water columns; boiler checks; balanced starting valves; coal sprinkler; water gages; gage cocks; locomotive fittings. Represented by Otto Best, J. F. Farrell, A. Kassander, Richard Welsh, William Wesh, William E. Brumble and W. D. Jenkins. Spaces 578-579.

National Boiler Washing Company of Illinois, Chicago.—Reception booth. Represented by Frederick A. Gale, T. G. Dalton and Fred W. Gale. Space 608.

National Brake Company, Inc., Buffalo, N. Y.—Two types of Peacock blind end baggage car brakes; Peacock freight car and passenger car brakes. Represented by F. D. Miller and W. D. Brewster. Space 322.

National Car Wheel Company, Pittsburgh, Pa.—Arch plate A. R. A. wheels of 650, 700, 750 and 850 lb.; new 850-lb. arch plate reinforced flange Star Special wheel for 70-ton cars; similar wheel after five years' service under car of 70 tons capacity. Represented by J. H. Yardley, J. S. Bucknam, J. F. Weisbrod, E. H. Chapin, H. L. Garvin and H. E. McClumpha. Spaces 516-518.

National Lock Washer Company, The, Newark, N. J.—Models of car curtains, curtain fixtures and rollers; car window fixtures including sash locks, balances and anti-rattling devices; National rib lock washers. Represented by C. H. Loutrel, J. Howard Horn, Daniel Hoyt, R. B. Cardozo, G. LaRue Masters, A. W. Preikschat and F. B. Archibald. Space 543.

National Malleable Castings Company, The, Cleveland, Ohio.—Couplers; journal boxes; draft gears; miscellaneous railroad castings. Represented by T. W. Aishton, A. J. Bazeley, A. O. Buckius, Jr., J. J. Byers, R. W. Chambers, W. E. Coffin, E. H. Schmidt, E. H. Fathauer, C. Garspar, H. W. Gilbert, J. H. Jascha, C. H. Krakau, H. T. Krakau, E. V. Sihler, J. A. Slater, S. L. Smith, F. K. Leyake, W. C. Lewis, O. W. Loomis, G. V. Martin, H. L. Mausk, C. H. McCrea, B. Nields, G. R. Rasmussen, F. Snyder, H. L. Spence, E. O. Warner and L. S. Wright. Spaces 613-615.

National Railway Appliance Company, New York.—Reception booth. Represented by B. A. Hegeman, Jr., W. C. Lincoln, Charles C. Castle, W. C. Peters, Fred C. J. Dell, Harold A. Hegeman and R. B. MacDonald. Space 622.

National Railway Devices Company, Chicago.—Shoemaker radial and vertical firedoors. Represented by Jay G. Robinson and E. J. Gunnison. Space E.

National Tube Company, Pittsburgh, Pa—Reception booth. Spaces 546-547.

Nazel Engineering & Machine Works, Philadelphia. Pa.—Nazel motor driven air hammer. Represented by Ralph W. Nazel and C. H. Wackernagel. Space 73.

Neville Lubricator Company, Pittsburgh, Pa.—Lubricator for air pumps. Represented by Louis W. Garratt. Space 528.

Newton Machine Tool Works, Inc., Philadelphia, Pa.—Crank planing machine; continuous milling machine. Represented by N. P. Lloyd, R. G. Holmes and W. B. Zietz. Spaces 91-93.

New York Air Brake Company, New York.—Samples of new centrifugal air pump strainer; new oil atomizing lubricator. Represented by Scott R. Hayes, C. E. Leach, George, Kleifges, N. W. Lyon, B. Hyanes and N. A. Campbell. Space 30.

Nicine Company, Chicago.—Absorbent, deodorant, disinfectant and germicide in bottles and cans. Represented by H. R. Millard and J. J. McCarthy. Space 318.

Niles-Bement-Pond Company, New York.—New type turret tool post for wheel lathes; new 32-in. shaper for driving box work; new 25-in. lathe; N. B. P. Right Line radial drill; gages and small tools. Represented by William G. Flaig, Edward L. Leeds, Charles L. Lyle, George C. Mills, Paul Renno, John Ross, D. H. Teas, N. C. Walpole and H. F. Welch. Spaces 116-118-120.

Norton, Inc., A. O., Boston, Mass.—Improved self-lowering speed controlled jacks; ball-bearing bridge and wrecking jacks; ball-bearing journal jacks. Represented by H. A. Norton, F. L. Gormley, G. R. Law, C. H. Smith, Jr., R. D. Bates and W. R. Kelly. Space 551.

Norwalk Iron Works Company, The, South Norwalk, Conn.—Air and ammonia compressors. Represented by C. L. Thompson, A. R. Betts and Don B. McCloud. Space 138.

Nuttall Company, R. D., Pittsburgh, Pa.—Heat treated gearing and miscellaneous parts for various applications; BP treated gearing for electrified steam roads. Represented by J. E. Mullen and R. F. Fiske. Space 94.

Okadee Company, Inc., The, Chicago.—Blow-off valves; blower valves; water glass protectors; tender hose couplers; automatic cylinder cocks; automatic drain valves; reflex water gages; model of Okadee front end hinge. Represented by A. G. Hollingshead, G. S. Turner, W. H. Heckman and J. M. Monroe. Space 573.

Okonite Company, The, Passaic, N. J.—Rubber covered wires and cables for railroad service; varnished cambric covered wires and cables; insulating tapes. Represented by W. R. Van Steenburgh, F. J. White and J. D. Underhill. Space 538.

Oldham & Son Company, George, Baltimore, Md.—Pneumatic riveting, chipping and scaling hammers, foundry rammers, jam riveters, holders-on, and accessories. Represented by H. J. Bannister, R. W. Nelson, J. T. Biles, P. J. Christy, F. W. Gau and F. R. Fraser. Space 320.

Oliver Electric & Manufacturing Company, St. Louis, Mo.—Plugs and receptacles; train line connectors; headlight switches; tender signal lamps; portable hand lamps; cab light fixtures; classification and marker lamps; flexible conduit couplings; safety-first switches; miscellaneous wiring devices; terminal and junction boxes. Represented by J. A. Amos and W. A. Ross. Space 316.

O'Malley-Beare Valve Company, Chicago.—Multiplate globe, angle, check and special locomotive valves; Multiplate Dullex blowoff cocks; Perfection gage cocks and water glass drains; driver brasses; engine castings; journal bearings. Represented by Thomas O'Malley, J. N. Gallagher, J. M. Pigott, A. W. Lemme and J. E. Brown. Space 133.

Otis Automatic Train Control, Inc., Spokane, Wash.—Automatic train and speed control; automatic brake setting valves and train line on small engine; ramp for operating brake setting valves automatically. Represented by A. F. Gammond, John T. Dickinson, A. L. Gesche, George Schweitzer and R. C. Miller. Space 706.

Oxweld Railroad Service Company, Chicago.—Oxy-acetylene equipment. Represented by M. C. Beymer, R. R. Browning, G. M. Crownover, Fred Gardner, H. V. Gigandet, F. C. Hasse, O. D. Hays, William Hogan, William Leighton, A. N. Lucas, J. P. McWilliams, C. B. Moore, C. M. Mendenhall, R. Rivett, E. S. Richardson, L. C. Ryan, H. W. Schulze, George Thompson and A. W. Whiteford. Space 2.

Page Steel & Wire Company, Bridgeport, Conn.—Page Armco welding rods and electrodes; Page Armco signal bond wires, line wire and strand; wire mesh for refrigerator car construction; panel partitions for store and stock rooms. Represented by W. T. Kyle, C. A. McCune, W. H. Bleecker and E. L. Schaeffer. Spaces 305-307.

Paige & Jones Chemical Company, New York.—Water softening tanks; boiler feedwater treatment. Represented by Fred O. Paige, Lucius A. Fritze and C. B. Flint. Space 358.

Pantasote Company, The, New York.—Agasote panels, wainscoting, ceilings, roofs; Pantasote artificial leather. Represented by John M. High, William Anderson and William A. Lake. Space 400.

Parish & Bingham Corporation, Cleveland, Ohio.—Pressed steel car parts. Represented by P. O. Krehbiel and C. E. Meyer. Space D.

Parkesburg Iron Company, Parkesburg, Pa.—Samples of genuine charcoal iron boiler tubes for locomotive boilers; sample of Parkesburg iron tube removed after 42 years of continuous service. Represented by H. A. Beale, Jr., George Thomas, 3rd, W. H. S. Bateman, J. R. Wetherald, G. W. Denyven, R. J. Sheridan, J. F. Wiese, G. H. Woodroffe, W. P. Canby and G. A. Cardwell. Space 388.

Paxton-Mitchell Company, Omaha, Neb.—Metallic piston rod and valve stem packing. Represented by James L. Paxton, E. L. Chollman, J. J. Keliher and W. S. Murrian. Space 533.

Peerless Machine Company, Racine, Wis.—Peerless 6-in. by 6-in. universal and plain metal sawing machines; 13-in. by 16-in. plain metal sawing machine. Represented by R. T. Ingalls and Charles Rasmussen. Space 215.

Pels & Co., Inc., Henry, New York.—Universal punch, plate, shear, bar, angle, tee, beam and channel cutter; combined punch, splitting shear, bar, angle and tee cutter; gate shear; double ended bar and angle shear; single ended coping machine. Represented by R. W. McPhee, T. C. Sternblad and C. A. Miller. Spaces 122-124-126-128.

Penn Iron & Steel Company, Creighton, Pa.—"Lewis" staybolt, engine bolt and chain iron, hollow staybolt iron and double refined iron. Represented by Charles J. Nieman and Wenman A. Hicks. Space 552.

Philadelphia & Reading Railway Company, Reading, Pa.—Consolidation type locomotive; Pacific type locomotive; hopper car; passenger coach. Space on exhibit track.

Pilliod Company, The , New York.—Baker locomotive valve gear; sentinel low water alarm. Represented by Burton Mudge, J. J. Donovan, William McGee, R. H. Weatherly and Harry Snyder. Spaces 576-577.

Pilot Packing Company, Inc., Chicago.—Pilot packing for various uses; Ripken automatic steam drifting valve. Represented by Joseph Sinkler and Robert Sinkler. Space 542.

Pittsburgh Steel Foundry Company, Pittsburgh, Pa.—Reception booth. Represented by H. V. Seth, John Allison and E. R. Williams. Space 168.

Pittsburgh Testing Laboratory, Pittsburgh, Pa.—Specially designed compression testing machine for testing samples of sand and cement in compression; specially designed brass molds for making test specimens used by the machine. Represented by James Milliken, A. R. Ellis, H. B. Lauderbaugh, H. W. Bates and H. M. Wey. Space 33.

Pocket List of Railroad Officials, The, New York.—Pocket List of Railroad Officials. Represented by J. Alexander Brown, Harold A. Brown and Charles L. Dinsmore. Outside of space 5.

Porter-Richards Machinery Company, Philadelphia, Pa.—Cisco 18-in. lathe; Clark portable electric drills, reamers, screw drivers, toolpost grinders, hand and suspended surface grinders; Clark electrically driven drill presses and emery grinders; Sweetland lathe chucks. Represented by S. G. Porter, E. I. Porter and J. R. Richards. Space 75.

Pratt & Lambert, Inc., Buffalo, N. Y.—Vitralite railway enamel system. Represented by J. P. Gowing and E. L. Georger. Space 521.

Pressed Steel Car Company, New York.—Reception booth. Represented by N. S. Reeder, J. F. MacEnulty, C. E. Postlethwaite, K. C. Gardner, H. H. Gilbert, C. C. Clark, J. G. Morrissey, F. L. Johnson, H. S. Hammond, J. S. Turner, W. H. Wilkinson, C. H. Jackman, J. T. Markham, J. F. Streib, H. P. Hoffstot, and F. O. Schramm. Spaces 545 and 601.

Princeton Foundry & Supply Company, Princeton, W. Va.—Perfection cone stove sand drier. Represented by C. J. Hilty and W. H. Golden. Space 163.

Production Machine Company, Springfield, Mass.—Cylindrical (centerless feed) polishing machine; automatic flat polisher; combined disk grinder, surfacer and polisher; Miller & Crowningshield hand millers; F. O. Wells Company broaching tools, taps, dies and screw plates. Represented by W. S. Howe and A. H. Behnke. Space 103-105.

Pugh, Inc., Job T., Philadelphia, Pa.—Augers and bits; hollow mortising chisels. Represented by M. H. Fussell, Jr. and E. T. Wade. Space E.

Pyle-National Company, Chicago.—Turbo-generators; cast aluminum cases, complete with reflectors and focusing device; Armco iron headlight cases; back-up lamps; steam turbine; 10-in. portable lamp; switch engine headlight case; adjustable flood and searchlights; fan; Nonglare and crystal glass reflectors; 10-in. flood light. Represented by R. C. Vilas, J. Will Johnson, William Miller, T. P. McGinnis, Crawford P. McGinnis, George E. Haas, R. L. Kilker, L. H. Steger and Walter Smith. Spaces 602-604-606.

Racine Tool & Machine Company, Racine, Wis.—New Racine Junior metal cutting machine; high speed metal cutting machine

with three-speed attachment; heavy duty metal cutting machine; Racine high speed portable rail cutting machine; Racine broach slotter and keyseater. Represented by E. Erskine, William Reinhardt and Thomas A. Hyde. Space 130.

Railroad Herald, The, Atlanta, Ga.—Reception booth. Represented by E. C. Laird. Space 20.

Railway Devices Company, St. Louis, Mo.—Perfection brake ratchets; Western angle cock holders; spiral pipe clamps; "iron horse" or pedestal; Sta-Rite release rigging attachments. Represented by Louis A. Hoerr and Sterling H. Campbell. Space 618.

Railway Materials Company, The, Chicago.—Railway brake shoes. Represented by W. M. Simpson, E. C. Folsom, George Hoeffle and Gustave Bluemel. Space 561.

Railway Purchases & Stores, Chicago.—Magazines. Represented by Edward Wray and H. B. Kirkland. Space 11.

Railway Review, Chicago, Ill.—Copies of Railway Review. Represented by Harold A. Smith, A. E. Hooven, Charles L. Bates, Willard A. Smith, L. G. Plant and J. E. Gougeon. Spaces 12-14.

Railway Storage Battery Car Company, New York.—Reception booth; data and information covering operation of Edison storage battery cars. Represented by L. Klopman and F. N. Koziell. Space 634.

Ralston Steel Car Company, The Columbus, Ohio.—Reception booth. Represented by F. E. Symons, B. C. Hanna, C. S. Rea, and Charles P. King. Space 558.

Reading Iron Company, Reading, Pa.—Full weight genuine wrought iron pipe; charcoal iron boiler tubes; genuine wrought iron railway signal pipe, nipples and couplings. Represented by Samuel L. Shober, Jr. Space 228.

Reed-Prentice Company, Worcester, Mass.—Reed-Prentice high speed 14-in. geared head lathe with apron, gear box and headstock units; 14-in. new type cone head lathe; 4-ft. arm radial drill. Represented by F. W. McIntyre, F. O. Hoagland, J. A. Benson, F. K. Hendrickson and P. K. Dayton. Spaces 88-90.

Regan Safety Devices Company, Inc., The, New York.—Regan automatic train control devices; animated technical drawings of the train control devices. Represented by J. Beaumont and F. J. Lepreau. Space 402.

Republic Iron & Steel Company, Youngstown, Ohio.—Reception booth. Represented by W. B. Topping and W. H. Oliver. Space 517.

Rivet Cutting Gun Company, Cincinnati, Ohio.—Cincinnati rivet cutting guns. Represented by L. K. DeBus and J. M. Crowe. Space 513.

Roberts Automatic Connector Company, Ltd., Sarnia, Ont.—Automatic steam and air pipe connector for passenger and freight service. Represented by John W. Roberts, Thomas Robinson and William E. Saylor. Spaces 159-160.

Robinson Connector Company, The, New York.—Automatic connectors. Represented by Joseph Robinson and G. E. Matheson. Space 703.

Roebling's Sons Company, John A., Trenton, N. J.—Gas and electric welding wire; steel and copper telephone and telegraph wire; bond wires, etc.; wire rope from 1/32-in. to 3¾-in. diameter, of various constructions; wire rope fittings; wire rope slings lifting a model locomotive; bell or signal cord; wire cloth for spark arrester, window screening, etc.; insulated wires and cables; induction coils. Represented by H. E. Thorn, A. E. Gaynor, L. Unsworth, Mr. Nolan, A. W. Miller and E. A. Bertram. Space 145.

Rogatchoff Company, The, Baltimore, Md.—Adjustable crossheads and piston bull rings. Represented by Theodore Rogatchoff and George M. Harrigan. Space 169.

Rome Iron Mills, Inc., New York.—Sample specimens of staybolt and engine bolt irons. Represented by B. A. Clements and C. C. Osterhout. Spaces 414-416-422-424.

Rubberset Company, Newark, N. J.—Rubberset paint and varnish brushes. Represented by A. L. Holtzman. Space 16.

Ryerson & Son, Joseph T., Chicago.—Ryerson-Conradson motor driven engine lathe; Ryerson flue shop model; Ryerson-Lennox rotary bevel shear model; Ryerson-Lennox rotary splitting shear model; Ulster Special seamless hollow staybolts; Ulster iron. Represented by J. P. Moses, H. T. Bradley, A. G. Moler, W. W. Kavanaugh, C. F. Barton and John Craigie. Space 132.

Safety Car Heating & Lighting Company, New York.—Car lighting equipment (electric and Pintsch); batteries and lighting fixtures; electric fans, water coolers and water heaters. Represented by W. L. Conwell, W. L. Garland, J. H. Rodger, R. H. Harvey, S. I. Hopkins, H. D. Donnell, A. B. Mills, H. K. Williams, G. Scott, J. H. Henry, L. W. Sipley, G. E. Hulse and L. Schepmoes. Space on stairway platform, Aquarium Court.

Sargent Company, Chicago.—Loedige quick-acting blower valves; safety water gages; safety water glass gaskets; water columns; Renu gage cocks. Represented by George H. Sargent and L. L. Schultz. Space 600.

Schaefer Equipment Company, Pittsburgh, Pa.—Schaefer truck lever connections, drop forged truck levers and brake rod jaws; collapsible stake pockets. Represented by F. A. Barbey, H. G. Doran, S. M. Hindman, J. C. Little, Frederic Schaefer and E. J. Searles. Space 511.

Sellers & Co., Inc., William, Philadelphia, Pa.—Locomotive injectors; locomotive valves and other accessories; annular disk boiler check; locomotive fire extinguisher; locomotive boiler tester. Represented by John D. McClintock, James R. New, Phillip E. Raymond, Edward L. Holljes and Charles T. Wilson. Space 627.

Sharon Pressed Steel Company, New York.—Corrugated car roof sections; Sharon Brute trailers; Bluenose hand trucks; Bearcat dollies; Sharon pressed steel caster; Sharon pressed steel wheel. Represented by C. K. Strausbaugh, H. F. Ziegler, H. W. Torry and R. B. Reid. Space 232.

Sherritt & Stoer Company, Inc., Philadelphia, Pa.—Hendey new model lathe and other machine tools. Represented by M. A. Sherritt, P. A. Rebok, H. M. Shaw, J. C. Carlton and G. A. Ebelhare. Space 109.

Silumite Products Corporation, Philadelphia, Pa.—Silumite paint for iron and steel. Represented by David V. Ault and George N. Ault. Space 502.

Simmons-Boardman Publishing Company, New York.—Railway Age; Railway Mechanical Engineer; Railway Maintenance Engineer; Marine Engineering and Shipping Age; Railway Electrical Engineer; The Boiler Maker; Car Builders' Cyclopedia; Locomotive Cyclopedia; Shipbuilding Cyclopedia; Maintenance of Way Cyclopedia; Material Handling Cyclopedia; books on transportation subjects. Represented by S. O. Dunn, R. V. Wright, A. F. Stuebing, R. E. Thayer, C. B. Peck, C. N. Winter, A. G. Oehler, E. L. Woodward, R. C. Augur, C. J. Corse, F. W. Kraeger, J. G. Lyne, A. E. Ortlinghaus, E. A. Rehm, E. A. Simmons, L. B. Sherman, C. R. Mills, F. H. Thompson, F. C. Koch, R. H. Smith, J. M. Rutherford, H. L. Burrhus, George Slate, H. B. Bolander, E. A. Lundy, J. E. Anderson, P. Traeger, J. E. Taylor, C. H. Knowlton, R. F. Duysters and J. Currie. Space 1.

Simonds Manufacturing Company, Fitchburg, Mass.—Solid and inserted tooth metal cutting saws; wood cutting saws; planer machine knives; hack saw blades and files. Represented by Charles H. McKay, R. D. Baldwin and Spencer Patterson. Space 204.

Sipe & Co., James B., Bridgeville, Pa.—Reception booth. Represented by R. E. Rogers. Space 215.

S K F Industries, Inc., New York.—Deep groove ball bearings; self-aligning ball bearings; Atlas steel balls. Represented by W. L. Batt, S. B. Taylor, R. H. DeMott, H. E. Brunner, H. A. Allen and R. C. Byler. Space 147.

Smith Locomotive Adjustable Hub Plate Company, The, Chicago, Ill.—Adjustable hub plates for locomotives. Represented by A. J. Sams, J. Will Johnson and C. P. McGinnis. Space 602.

Southern Wheel Company, St. Louis, Mo.—Reception booth. Represented by F. C. Turner, J. B. Spencer and S. C. Watkins. Space 418.

Southwark Foundry & Machine Company, Philadelphia, Pa.—Southwark-Mason washer cutting press; flue welder; bushing

press; models of hydraulic spring banding press and continuous furnace mechanism. Represented by W. H. Harman, F. G. Schranz, G. H. Case, W. A. Lacke, W. L. DeLaney, F. M. Kepler, S. Bolling and J. T. Lee. Space 135.

Stafford Roller Bearing Car Truck Corporation, Lawton, Mich.—Standard M. C. B. arch-bar type, 40,000 lb. capacity truck, equipped with Stafford roller bearings (shown in motion) and journal boxes. Michigan Central 80,000 lb. capacity box car, with trucks equipped for the past 20 months with Stafford roller bearings and journal boxes. Represented by L. K. Stafford and O. F. Packer. Space 206 and on exhibit track.

Standard Car Truck Company, Chicago.—Barber lateral motion truck device; Barber roller side bearings; Barber universal coupler carrying iron. Represented by L. W. Barber, James T. Milner, F. L. Barber and E. W. Webb. Space 510.

Standard Coupler Company, New York.—Various types of Sessions-Standard friction draft gears and Laughlin roller side bearings. Represented by A. P. Dennis, W. Eckles and E. G. Goodwin. Space 500.

Standard Electric Crane & Hoist Company, Philadelphia, Pa.—New type of short-headroom monorail electric hoist of two to three tons capacity. Represented by H. S. Valentine, E. C. Roop and P. G. Basehore. Space 73.

Standard Forgings Company, Chicago.—Stanforge friction draft gear; Stanforge forged steel yoke; standard A. R. A. journal box wedges; drop forged steel center plates. Represented by E. W. Richey, O. L. DeLano and M. A. Metzger. Space 535.

Standard Railway Equipment Company, Chicago.—Murphy roofs, carlines, running board extensions, steel ends, release rigging, centering device; hopper doors; National side door. Represented by W. P. Murphy, A. A. Frank, S. G. Rea, George Cooke, A. C. Murphy, G. G. Gilpin, A. G. Bancroft, V. E. Sisson and T. J. Cralley. Spaces 426-428.

Steele Fabricating Corporation, The, Michigan City, Ind.—Photographs and descriptive matter of Stefco ready-to erect structural steel buildings for industrial purposes. Represented by A. C. McGuire, George C. Jones and C. K. Drury. Space 42.

Stone-Franklin Company, New York.—Standard single battery car lighting equipment (running exhibit); detail parts of equipment. Represented by R. G. Coburn, J. L. Hays, C. E. Walker, W. L. Gray, H. D. Rohman, R. E. Gallagher and R. Gerrard. Space 406.

Stowell Company, The, South Milwaukee, Wis.—Wilbern adjustable door hangers for warehouses and factory doors. Represented by I. W. Davis. Space 332.

Street, Clement F., Greenwich, Conn.—Street locomotive starter. Represented by Clement F. Street. Space 167.

Stucki Company, A., Pittsburgh, Pa.—Frictionless side bearings; side bearing testing machine; side bearing after eight years' continuous service under 100-ton car. Represented by A. Stucki, A. B. Severn and W. C. Hansen. Space 539.

Sunbeam Electric Manufacturing Company, Evansville, Ind.—Turbo-generator; standard locomotive headlight; cast metal headlight; cast metal cab lamp fittings; Sunbeam airtight headlight. Represented by F. W. Edmonds, W. T. Manlogue and J. Henry Schroeder. Spaces 321-323.

Superheater Company, The, New York.—Stationary superheater; marine superheater; exhaust steam injector; pyrometer; closed type feedwater heater; cab heater coil; system of superheater unit repairs. Represented by G. L. Bourne, F. S. Schaff, G. E. Ryder, R. M. Ostermann, C. H. True, H. B. Oatley, R. R. Porterfield, C. A. Brandt, W. A. Buckbee and Bard Browne. Spaces 422-424.

Superior Steel Castings Company, Chicago.—Steel and malleable iron car castings. Represented by S. E. Doster and W. R. Gilmore. Space 38.

Swanson Automatic Flange Lubricator Company, The, Denver, Colo.—Automatic flange lubricator; air-pump piston swab nut lock. Represented by O. W. Swanson and A. T. Arthur. Space 166.

Swind Machinery Company, Philadelphia, Pa.—Gray 36-in. maximum service planer; Bradford 26-in. geared head lathe; Fosdick 4-ft. radial drilling machine; No. 121 Baker boring and drilling machine. Represented by L. H. Swind, H. Wright, G. Helling, William J. Powers and R. W. Burk. Space 51.

Symington Company, The T. H., New York.—Freight and passenger car journal boxes; wrought steel truck bolster; wrought steel side frame; swivel butt coupler; Farlow draft attachments. Represented by T. H. Symington, C. J. Symington, LeRoy Kramer, D. S. Barrows, R. H. Gwaltney, T. C. deRosset, I. O. Wright, A. H. Weston, H. K. Smith, A. W. Brown, C. R. Naylor, Hynes Sparks and H. W. White, Jr. Spaces 570 571.

Talmage Manufacturing Company, The, Cleveland, Ohio.—Talmage system ashpan cleaner; Talmage ratchet hand brake; Talmage grease cup; Talmage blow-off valve; Talmage steam chest; Talmage cylinder lubricating drifting valves; Cleveland low water alarm. Represented by Frank M. Roby, H. B. Thurston, and Alfred F. Letherer. Spaces 354-355-356-357.

Torchweld Equipment Company, Chicago.—Torchweld non-flash oxy-acetylene cutting and welding equipment. Represented by W. A. Slack and A. F. Dillon. Space E.

Tuco Products Corporation, New York.—Flexolith plastic composition car flooring; National standard treated roofiing canvas; National and Universal trap doors and locks; Resisto hair felt insulation; Tucork mineral insulation for car floors; Rockwul jacket insulation; Imperial car screens; Royal adjustable shoe car screens; Eclipse deck sash ratchets. Represented by David W. Pye, Frank N. Grigg, Thomas L. Miller, R. F. O'Leary, George Hricovsky, James C. Coleman and Frank A. Barbey. Space 628.

Underwood Corporation, H. B., Philadelphia, Pa.—Locomotive boring bar for cylinders and valve chambers; circular planer tool for locomtive driving boxes; portable valve seat rotary planer; locomotive cylinder and dome facing machine; locomotive crank pin turning machine; link or curve planer attachment; flue cleaner; 3-hp. vertical engine. Represented by George A. Graham, George C. Flannigan and W. Weidermann. Spaces 379-381.

Union Draft Gear Company, Chicago.—Cardwell friction draft gear type "G," classes 11-A, 25-A and 11A Duplex. Represented by J. R. Cardwell, L. T. Canfield, H. Barnard, J. W. Hathaway, J. E. Tarelton, W. G. Krauser, C. J. Gorman, F. E. Schmitz and J. A .King. Spaces 413-415.

Union Metal Products Company, Chicago.—See Standard Railway Equipment Company.

Union Spring & Manufacturing Company, Pittsburgh, Pa.—Reception booth. Represented by L. G. Woods, A. C. Woods, A. Pancoast, D. R. Warfield, F. E. Schaeffer, W. L. Jeffries and J. W. Chandler. Space 553.

U. S. Light & Heat Corporation, Niagara Falls, N. Y.—USL car lighting equipment; car lighting generator with shaft drive; USL Planté type storage battery; USL regulator panel; USL 200 and 300-ampere portable arc welders. Represented by H. A. Matthews, W. L. Bliss, W. A. Turbayne, E. Bauer and O. R. Hildebrant. Space 338.

U. S. Metallic Packing Company, The, Philadelphia, Pa.—King metallic packing; King cylinder cock; King grease plug; King sanders; Leach track sanders; Gollmar bell ringer. Represented by Elliott Curtiss, R. A. Light, L. B. Miller, R. R. Wells, J. T. Luscombe, J. S. Mace and H. E. Hyslop. Spaces 566-567.

United States Rubber Company, New York.—Mechanical rubber goods; packings; hard rubber train lighting battery jars and accessories. Represented by G. A. Gardner, A. B. Means, F. E. Dodson, Thomas Plunkett, W. B. Wise and M. P. Junkin. Space 7.

Universal Boring Machine Company, Hudson, Mass.—Original Tri-Way universal (horizontal) boring machine; universal precision level. Represented by Donald C. Watson. Space 77.

Universal Draft Gear Attachment Company, Chicago.—Reinforcing draft arms; Rivles yokes; keyed yokes; riveted type of yokes; tandem draft castings; draft lugs; hand brake attachments. Represented by C. J. Nash, C. C. Kinsman, H. I. Wrigley and H. E. Bartsch. Space 515.

Universal Packing & Service Company, Chicago.—Spring journal packing. Represented by J. P. Landreth, G. H. Green, W. H. Davis and T. P. Williams. Space 501.

Vanadium Alloys Steel Company, Latrobe, Pa.—Samples of high speed, alloy and carbon steels and tools made therefrom. Represented by John Theis, William R. Mau, A. F. Chilcott, H. F. Bardwell and H. P. Edison. Space 300.

Vanadium Corporation of America, New York.—Ferro-Vanadium; cold bent sections of normalized carbon vanadium steel locomotive forgings made by The Erie Forge Company and The United Alloy Steel Corporation. Represented by Merrill G. Baker, George N. Norris and Charles F. Fritz. Space 5.

Van Dorn Coupler Company, Chicago.—Automatic couplers. Represented by J. McWilliam Stone. Space 38.

Vapor Car Heating Company, Inc., Chicago.— Vapor system of passenger car heating; locomotive specialties for train heating, including pressure reducing valves; vertical coils for baggage and mail car heating; flexible metallic steam conduits for passenger cars; steam hose couplers; end train pipe valves; steam traps; specialties for hot water heating systems; auxiliary heating stove; miscellaneous fittings. Represented by E. H. Gold, J. E. Buker, R. P. Cooley, N. F. Burns, W. L. Garland, F. A. Purdy, H. F. Lowman, F. F. Coggin, E. A. Russell, E. E. Smith, L. H. Gillick, L. B. Rhodes, C. E. Lowell, P. B. Parks, H. D. Donnell. Spaces 208-210-212-214-216.

Verona Tool Works, Pittsburgh, Pa.—Railroad jacks; mechanical department tools; track tools; track levels; rail springs; nut locks. Represented by E. Woodings, John S. Wincrantz, W. W. Glosser, Porter L. Laughlin and William F. Hart. Space 617.

Vissering & Co., Inc., Harry, Chicago.—Viloco lead lined sanders; Leach type sanders; Viloco bell ringers; Viloco duplex engineers' valve; Viloco bell ringer throttle valve; Viloco uncoupling lever attachment; Viloco rail washer; Viloco portable cylinder head crane; Crescent metallic piston rod and valve stem packing. Represented by Harry Vissering, G. S. Turner, W. H. Heckman and J. M. Monroe. Space 574.

Walworth Manufacturing Company, Boston, Mass.—Genuine Walworth Stillson wrench; Kewanee unions and specialties; Walworth valves; cast and malleable iron fittings. Represented by L. F. Hamilton, H. S. Patterson, H. C. Goodwin and W. P. Kerr. Space 412.

Waugh Draft Gear Company, Chicago.—Models of draft gears; draft gears with auxiliary; platform buffers; Chaffee centering devices; freight car truck spring. Represented by J. M. Waugh, H. V. Conine, S. T. Rowley and C. E. Combs. Space 612.

Wayne Tool Manufacturing Company, Waynesboro, Pa.—Car builders', bridge and locomotive reamers; drill chuck for salvaging broken twist drills. Represented by William H. Strauss, R. C. Gordon and E. H. Stickels. Space 172.

West Disinfecting Company, New York.—Disinfectants; sanitary appliances; fumigators; liquid soap; metal polish; paper towels; steam sterilizers for water coolers; Holdzem rat catcher. Represented by H. E. Daniels, E. C. Daniels and C. P. Williams. Space 26.

Western Railway Equipment Company, St. Louis, Mo.—Western brake jaws; Top Notch journal bearing wedges. Represented by Louis A. Hoerr and Sterling H. Campbell. Space 618.

Western Steel Car & Foundry Company, New York.—See Pressed Steel Car Company.

Westinghouse Air Brake Company, Pittsburgh, Pa.—Motor driven air compressor of 300-500 cu. ft. capacity; Wabco brake cylinder packing cups; new automatic lubricator for air compressors; enameled main reservoirs; friction draft gear. Represented by W. S. Bartholomew, G. W. Wildin, S. G. Down, C. C. Farmer, C. J. Olmstead, C. H. Beck, Robert Burgess, J. B. Wright, R. E. Adreon, C. P. Cass, A. K. Hohmyer, F. H. Whitney, H. A. Wahlert, T. W. Newburn, J. S. Y. Fralich, J. C. McCune, C. D. Stewart, F. B. Farmer, G. B. Pierce, R. W. Williams, J. F. Craig, F. H. Parke, A. L. Berghane, C. H. Larimer, E. G. Desoe, F. W. Ainsworth, L. Wilcox, R. I. Cunningham, H. H. Burns, F. B. Johnson, W. M. Sleet, A. G. Huston, M. H. Burchard and F. C. Young. Spaces 23-25-27-29-100.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.—Portable arc welding outfit in operation; turntable equipment in operation; locomotive headlight generator and parts; overhead line material; drum controllers; automatic starting panels; motor starting switches; industrial lighting exhibit. Represented by C. C. Bowden, A. M. Candy, W. F. Cargo, F. W. Carter, B. L. Clegg, S. B. Cooper, J. L. Crouse, A. L. Harvey, O. W. Hershey, H. A. Houston, H. D. James, A. M. Jones, C. R. Jones, G. T. Keetch, R. H. Kilner, E. D. Lynch, W. R. Marshall, J. C. McQuiston, Paul Orr, L. C. Paul, L. N. Reed, W. W. Reddie, R. J. Ross, E. F. Sells, W. R. Stinemetz, N. W. Storer, A. D. Turner, E. M. Wise and F. E. Wynne. Spaces 21-23-25-27-29-96-98-100

Wheel Truing Brake Shoe Company, Detroit, Mich.—Abrasive brake shoes. Represented by J. M. Griffin and F. F. Griffin. Space 507.

White American Locomotive Sander Company, Roanoke, Va.—Graham-White Perfect sander with new operating valve. Represented by James Frantz and W. L. Ranson. Space 209.

White Company, The, Cleveland, Ohio.—Gasoline rail cars. Represented by O. M. Crotty and D. B. Bugg. Space 709.

Whiting Corporation, Harvey, Ill.—Model of locomotive hoist and crane trolley; photographs, drawings, etc. Represented by R. H. Bourne and A. H. McDougall. Spaces 359-361

Widgeon Company, J. M., Norfolk, Va.—Simplex reverse gear. Represented by J. M. Widgeon and A. W. Calcott. Space 709.

Wilbert Manufacturing Company, Chicago.—Piston rod lubricator. Represented by J. J. McCarthy. Space 318.

Willard Storage Battery Company, Cleveland, Ohio.—Standard two-compartment unit in rubber jars, with parts; special panel showing plate details; railway signal cells, sealed glass and hard rubber jar types; radio "A" and "B" batteries. Represented by A. E. Harrold and Louis Sears. Space 34.

Williams Tool Corporation, Erie, Pa.—Power pipe threading machines with new Williams patent receding die head. Represented by Leslie S. Hall. Space 226.

Wilson-Imperial Company, Newark, N. J.—Imperial interior and exterior car cleaners; Removerine plush cleaner; re-dyes; Imperial process for cleaning and re-dyeing plush seats and backs and pantasote shades and curtains. Represented by Frank Sherritt, D. J. Giles, C. A. Beaumont and Joseph Kempf. Space 200.

Wine Railway Appliance Company, The, Toledo, Ohio.—Side bearings; steel ladders; ventilators; working models of drop door locks, showing application to gondola as well as hopper cars. Represented by W. F. Cremean, Peter P. Beck, Cyrus J. Holland, R. F. Tillman, W. E. Wine and W. M. Bosworth. Space 630.

Wolfe Brush Company, Pittsburgh, Pa.—Wall brushes; varnish, whitewash and stencil brushes; car wash brushes; painter duster. Represented by H. R. Potter and D. K. Coyle. Space 629.

Wood Iron & Steel Company, Alan, Philadelphia, Pa.—Special articles made of plates and sheets; "AW" Diamond pattern rolled steel floor plates for platforms, steps, locomotive aprons, running boards, etc. Represented by Charles O. Hadly, Willard S. Haring, F. C. Carter and J. R. Jones, Jr. Space 9.

Woods & Co., Edwin S., Chicago.—Anti-friction center bearing; Tip Roller body side bearings for locomotive and freight cars; Counterbalance truck side bearings for freight cars; Pullman type and spring-controlled passenger car side bearings. Represented by A. G. Welch, W. B. Ross and H. M. Perry. Space 617.

Worthington Pump & Machinery Corporation, New York.—No. 2 and No. 3 Worthington locomotive feedwater heaters. Represented by Thomas C. McBride, John M. Lammedee, D. R. Coleman, Paul B. Fenlon and H. E. Troutman. Spaces 13-15.

Wright Manufacturing Company, Lisbon, Ohio.—High speed chain hoists; standard screw chain hoists; differential chain hoists; steel trolleys. Represented by William F. Wright and E. B. Low. Space 327.

Wyoming Shovel Works, The, Wyoming, Pa.—Red Edge scoops; testing machines. Represented by H. T. Potter, N. E. Brooks, W. C. Wright and E. L. Ruby. Space 211.

Yale & Towne Manufacturing Company, The, Stamford, Conn.—Electric crane truck; electric chain hoist with manual control; same hoist with push button control; spur geared chain block; screw geared chain block; differential chain block; plain and geared trolleys; I-beam track; samples of tested chain and hooks; railroad padlocks; guard locks; general exhibit of builders' locks. Represented by Charles W. Beaver, R. P. Anderson, James C. Morgan, H. J. Fuller, H. A. White and F. Juraschek. Spaces 104-106.

Zapon Leather Cloth Company, New York.—Special vestibule curtain material; car curtain material; Zapon leather cloth; Zapon lacquers and enamels. Represented by G. Gurske, W. M. Lalor, A. A. Atchison and W. H. Dawson. Space 158.

Railroad Labor Board at the Conventions

IT IS GRATIFYING to both railway men and equipment and supply men that the members of the Railroad Labor Board have been tendered and have accepted an invitation to attend this year's conventions and inspect the exhibit. All the members of the board will be here.

With the exception of the Interstate Commerce Commission, the Labor Board is the most important body for the regulation of the railroads ever established in the United States. It deals only with the relations of the roads and their employees, but, of course, there are no railroad problems more difficult or important at present than those arising out of the relations between the roads and the employees.

The board, as most readers of *The Daily* know, is composed of three members representing the railways, three the employees, and three the public. The railway members are Horace Baker, formerly general manager of the Queen & Crescent; Colonel J. H. Elliott, formerly general manager of the Texas & Pacific, and later a colonel of the Transportation Corps in France, and Samuel Higgins, formerly deputy president of the Brotherhood of Railroad Hartford. The labor members are A. O. Wharton, formerly president of the Railroad Employees Department of the American Federation of Labor; Albert Phillips, formerly vice-president of the Brotherhood of Locomotive Firemen & Enginemen, and W. L. McMenimen, formerly deputy president of the Brotherhood of Railroad Trainmen. The public members are Ben W. Hooper, formerly governor of Tennessee, who is now chairman of the board; Judge R. M. Barton, formerly its chairman, and G. W. W. Hanger, who long served as a member of the federal Board of Mediation and Conciliation.

The board has had to settle some of the most important labor controversies that have ever arisen on the railways since it came into existence early in 1920 when the railways were returned to private operation. Among these have been controversies between the mechanical departments and the employees in the shops over both wages and the rules in the national agreement made under government control. The members of the board evidently believed that it would be helpful to them in their work to hear the reports and discussions at the conventions, to inspect the exhibit and to observe generally what goes on here, and in this they are undoubtedly right.

The Mechanical Division of A. R. A. and the Railway Supply Manufacturers' Association have been glad to welcome them and have arranged to do whatever is possible to make their visit pleasant and profitable.

Registration, American Railway Association, Div. V, Mechanical

Alleman, Charles W., Supt Stores, P. & L. E., Glaslyn Chatham.
Alquist, P., M. C. B., P. M., Chelsea.
Anderson, J. J., M. M., Challahoochee Valley, Osborne.
Anderson, J. P., S. S., N. P., Haddon Hall.
Anderson, R. W., S. M. P., C. M. & St. P., Traymore.
Beattie, J. A., G. S., Mc. K. C., Traymore.
Bell, J. Snowden, Wiltshire.
Bell, R. W., G. S. M. P., I. C., Marlborough.
Bilger, Orris, Mech. Engr., K. C. M. & O., Craig Hall.
Blunt, J. G., M. E., Amer. Loco. Co., Traymore.
Bohan, W. J., Asst. Gen. M. S., N. P., Marlborough.
Brazier, F. W., Asst. G. S. R. Sta., N. Y. C., Marlborough.
Browning, A. C., Asst. to Secy. Mech. Div., Am. Ry. Assn., Runnymede.
Bryan, R. D., G. C. F., A. T. & S. F., Princess.
Buzzell, O. D., G. C. F., A. T. & S. F., Chalfonte.
Campbell, F. D., Asst. M. C. B., C. M. & St. P., Traymore.
Chambers, C. E., Supt. M. P. & Equip., C. R. of N. J., Traymore.
Coleman, James, Asst. to Gen. Supt. M. P. & Car Dept., G. T., Marlborough.
Dow, A. M., G. F., E. P. & P. W., Strand.
Eisele, H., Asst. Supt. Loc. Dept., Wabash, Strand.
Endicott, G. F., Asst. M. C. B., N. P., Blenheim.
Emerson, C. H., M. C. B., E. J. & E.
Emerson, Chas., M. M., N. P., Princess.
Flory, B. P., S. M. P., N. Y. O. & W., Marlborough.
Fuller, C. E., S. M. P. & M., U. P., Marlborough.
Fusch, Frank, S. M. P., C. M. & St. P., Traymore.
Giles, C. P., Supt. Mach., L. & N., Traymore.
Goodnow, T. H., S. C. D., C. & N. W., Marlborough.
Goodwin, Geo. S., M. E., C. R. I. & P., Chalfonte.
Greenough, Grafton, V. P., Baldwin Loco. Wks., Ambassador.
Griffin, H. G., G. S. Shops, Morris & Co., Strand.
Hall, John M., Asst. Ch. Insp. of Locos., I. C. C., Princess.
Hawthorne, V. R., Secy., Div. 5 Am. Ry. Assn., Marlborough.
Haymond, F. O., S. M. P., Bingham & Carfield, Marlborough.
Hazel, J. F., Supt. M. P. & Equip., D. T. & Sht. Lines, Strand.
Helwig, A. A., Supt. Equip., Kansas City Term., Strand.
Hendrick, F. L., Ch. Joint Car Insp., Penn., Monticello.
Hennessey, J. J., Asst. M. C. B., C. M. & St. P., Traymore.
Hinckley, H. C., S. M. P., O. S. L., Chalfonte.
Hodges, G. P., M. M., C. M. & St. P., 141 S. Illinois Ave.
Hogarth, Wm., M. C. B., Cudahy Ref. Lines, Strand.
Johnston, C. S., Est. Eng., A. T. & S. F., Ambassador.
Johnson, N. W., M. C. B., M. & S. L., Alamac.
Jones, E. F., M. M., B. Ry., of C., Glaslyn-Chatham.
Kearney A., S. M. P., N. & W., Traymore.
Kelly, Wm., G. S. M. P., G. N., Ritz Carlton.
Kells, Willard, G. S. M. P., A. C. L., Llewlyn.
Kempf, C. P., M. S., P. & W. Va., Pennhurst.
Kilpatrick, R. F., Chalfonte.
Kinney, W. H., Strand.
Kruttschnutt, John, Asst. M. E., S. P., Ambassador.
Lewis, W. H., S. M. P., Retired, N. & W., Marlborough.
Machesney, A. C., Marlborough.
Mac Rae J. F., M. E., M. & St. L., Chalfonte.
Mahan, J. E., G. C. F., C. M. & St. P., Traymore.
Matthes John, Ch. Car Insp., Wabash, Penhurst.
McQuillan, J. E., Mech. Supt., Gulf Col. & Santa Fe, Chalfonte.
Milton, J. N., S. C. D., R. R., Chalfonte.
Minick, Eli, C. C. F., L. V. R. R., Monticello.
Moore, B. R., S. M. P., D. & I. R., Traymore.
Patmor, H. F., G. C. F., P. & W. V., Pennhurst.
Peck, C. B., Western Mech. Editor, Railway Age, Dennis.
Peters, J. W., M. C. B., Wst. Lines, Princess.
Porth, H. W. L., M. C. B., Swift Refgr. Transp. Co., Traymore.
Pownall, W. D., M. E., Wabash, Traymore.
Powers, M. J., S. M. P., Midland Terminal, Arlington.
Prendergast, A. P., M. S., T. & P., Ritz Carlton.
Purcell, John, Asst. to V. P., A. T. & S. F., Marlborough.
Putnam, C. H., M. C. B., G. N., Ambassador.
Rae, C. H., Asst. Supt. Mach., L. & N., Shelburne.
Richardson, L. A., M. S., C. R. I. & P., Ambassador.
Riley Geo. N., S. M. P., Lake Terminal, Marlborough.
Ripley, C. T., Ch. M. E., A. T. & S. Fe., Marlborough.
Robertson, E. J., Supt. Car Dept., Soo Line, Ritz Carlton.
Robinson, Lee, Shop Eng., I. C., Traymore.
Rockefellow, W. E., Div. Gen. C. F., N. Y. C., N. R., Pennhurst.
Russell, F. E., Asst. M. E., S. P., Ambassador.
Ryan, J. M., Gen. Insp., C. St. P. M. & O., Chalfonte.
Schroyer, C. A., Rtd., Spt. C. D., C. & N. W., Strand.
Schultz, F. C., Chf. Interchange Insp., All Chicago Lines, Traymore.
Sedden, C. W., S. M. P., D. M. & N., Traymore.
Seley, C. A., Marlborough.
Selloy, S. H., Gen. C. F., B. & A., Pennhurst.
Simms, H. A., Mech. Supt. Car Equip., Amer. Ry. Express Co., Chalfonte.
Smith, R. D., S. M. P. & R. S., B. & A., Dennis.
St. Clair, James T., Asst. Eng. Car. Const.
Schlafge, Wm., Traymore.
Smith, E. S., M. C. B., F. E. C., Sterling.
Stackhouse, R. J., G. S., P. & R., Haddon Hall.
Stoll. W. J., Ch. Interchange Inspr., Asso. Lines, Penhurst.
Stuebing, A. F., Editor Mech. Dept., Railway Age, Dennis.
Tatum, J. I., Supt. Car Dept., B. & O., Chelsea.
Thomson. Geo. E., Dist. M. C. B., N. Y. C., Strand.
Thayer, R. E., European Editor, Railway Age, Dennis.
Thompson, I. G., M. M., L. V., Monticello.
Tollerton. W. J., G. M. S., C. R. I. & P., Marlborough.
Weiler, G. S., G. C. F., G. C. & S. F., Loraine.
Winterrowd, W. H., Ch. M. E., C. P., Marlborough.
Woods G. D., Supt. Car Works, A. T. & S. F., New England.
Wright, Roy V., Mgr. Editor, Railway Age, Dennis.
Wymer, C. I., S. C. D., C. & E. I., Traymore.
Young, J. P., Gen. Insp. Pass. Equip., M. P., Chalfonte.
Zwight, S., M. S., N. P., Marlborough.

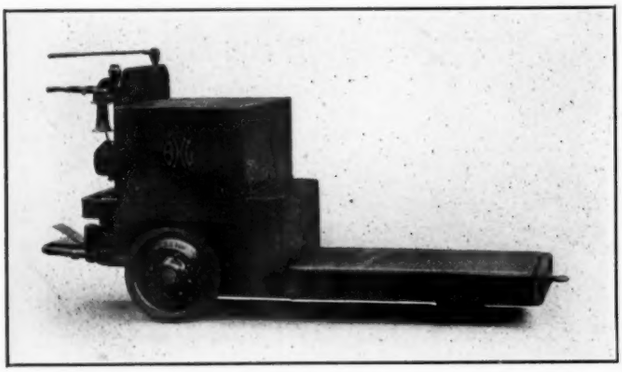
Special Guests

Chambers, Andrew, Retired Engr., Penn.
Baker, Horace, U. S. R. R. Labor Board, Marlborough.
Baker, John, Ch. Cl. G. M. S., C. R. T. & P., Marlborough.
Barton, Judge R. M., Chairman, U. S. R. R. Labor Board.
Baggs, T. H., P. A., C. & E. O., Traymore.
F. R. Campbell, Ch. Joint Car Insp., Twin Cities, Schlitz.
Eklind, C. E., Ch., Draughtsman, Penn., Ambassador.
Hawk, R. R., Supt., Wilson Car Lines, Haddon Hall.
Haymond, F. O. Jr., Marlborough.
Higgins, Samuel, U. S. Labor Board, Ambassador.
Lynch, Geo., Ch. Joint Car Insp., Penn., Bouvier.
McMerrimen, W. L., Railroad Labor Board, Traymore.
Mitchell, C. J., Round House For., N. P., Princess.
Owens, R. H., M. C. B., Casden Ref. Co., Strand.
Peck, Nelson, Haddon Hall.
Peter, N. M., Capt I. M. Marine Corp., Ritz Carlton.
Peterson, Bror Viktor, M. E., Swedish Govt. Rys.
Pope, F. H., Col. I. M. Corp., Ritz Carlton.
Pownall, Wm. L, Traymore.
Remick, J. H., Ch. Clerk M. C. B., N. P., Marlborough.
Stayer, Edgar S., Lt. Co. I. M. Corp., Ritz Carlton.
Storey, W. B., Pres., A. T. & S. F., Marlborough.
Thomas, Wm. B., 4710 Therss Pl.
Wieberg, R. L., Asst. G. F., B. & A., Pennhurst.
Wiswell, L. S., C. R. I. & P., Ambassador.
Zuber, Joseph, Round House For., N. P., Princess.

New Devices Among the Exhibits

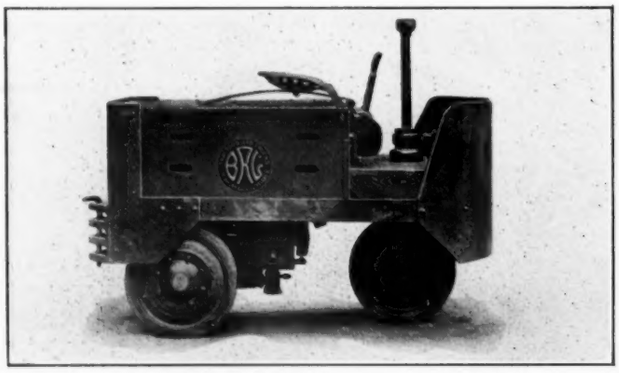
Electric Trucks and Tractors

AN ELECTRIC CRANE TRUCK is being exhibited by the Baker R. & I. Company, Cleveland, Ohio, which is constructed on principles similar to those used in the construction of locomotive cranes. The complete equipment consists of a three-movement crane mounted on the standard type QUQ utility truck, built by the Baker Company. The truck drives and steers on all four wheels and is driven by a 24-volt motor with a 72-ampere rating at 115. or. p. m. The motor has a 300 per cent overload capacity for thirty minutes; it is connected to the wheels through single reduction worm drives, with



Elevating Platform Truck, Type DELQ

four-pinion differentials of the bevel gear type, radial and thrust ball bearings, dished wheels with knuckle pivots over tire center lines, and full troller and brake pedal-floating drive shafts. The controller is of the drum type which permits three speeds forward and reverse, and an automatic switch is provided which interlocks the

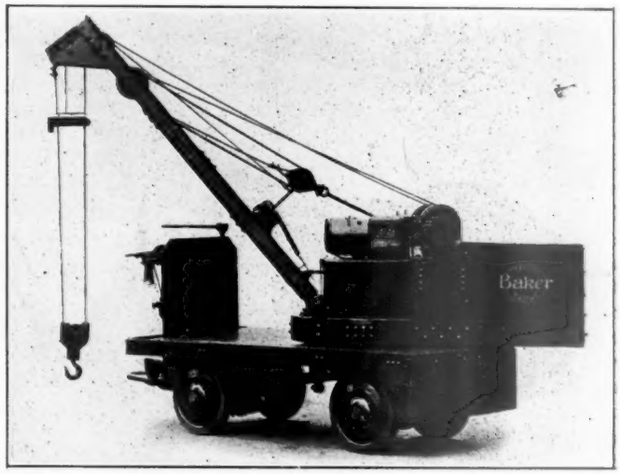


Three-Wheel Tractor, Type DTS

controller and brake pedal. The brake is of the external contracting type operating on the worm shaft. A horizontal tiller steering handle is used and all steering levers and knuckles are fitted with renewable bushings.

The hoisting mechanism is self-contained with the battery compartment, the battery serving as a counterweight to the loaded crane. The operator, without leaving his position on the operating platform, can control the three movements of the crane and hoisting mechanism with three push-button control switches located on the dash. The three movements consist of raising and lowering the hook, raising and lowering the boom, and swiveling or slewing the crane and hoisting mechanism through an arc of 370 deg. All of these movements may be performed simultaneously.

The hook and boom are operated by two identical special Sprague one-ton hoists with spur and worm gear reduction. The motors mounted on these hoists are 24-volt, series wound, totally enclosed motors which are provided with electric brakes. A smaller, similarly designed motor is used for slewing, this motor being connected through a worm gearing to a spur pinion which travels around a large stationary bull-ring gear mounted on the



Three-Movement Electric Crane Truck

truck platform. The boom and hook are operated by their respective motors through double reduction spur and worm gearings.

The hoisting mechanism has a capacity of 2000 lb. load on the hook with a 7-ft. boom radius, the height under the hook for this radius being 10 ft. The hoisting speed of the hook is 45 ft. per minute with no load and 16 ft. per minute with a load of 2000 lb. The time required to raise the boom through its complete travel is from 12 to 20 seconds with loads varying from nothing to 2000 lb. The crane can be swung through an arc of 270 deg. in 20 seconds, and the truck operates at a speed of about six miles an hour. The weight of the outfit without battery is 6000 lb.; with 12 cells of 21-plate Ironclad battery it is 6840 lb., and with 24 cells of G-11 Edison battery, 6710 lb. The rated capacity of hoisting and crane mechanism given above do not depend upon the use of outriggers to give the machine stability.

The other two machines being exhibited by the Baker Company are its type DTS 3-wheel tractor, and its type DELQ elevating platform truck. The tractor has been developed during the past year-and-a-half and a few of them are now in operation in industrial service.

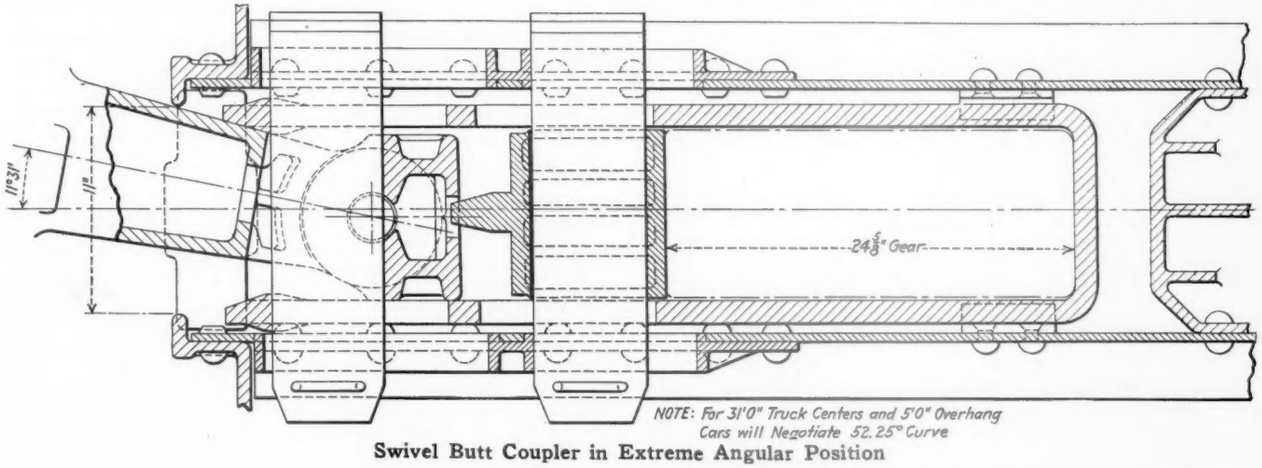
The elevating platform truck is similar to those which have been marketed for several years past except that

in its present form it embodies several minor improvements and one new feature, namely, the method of mounting the running gear to the frame through compensating adjustable ball connections. This feature is now incorporated in all of the three machines on exhibit.

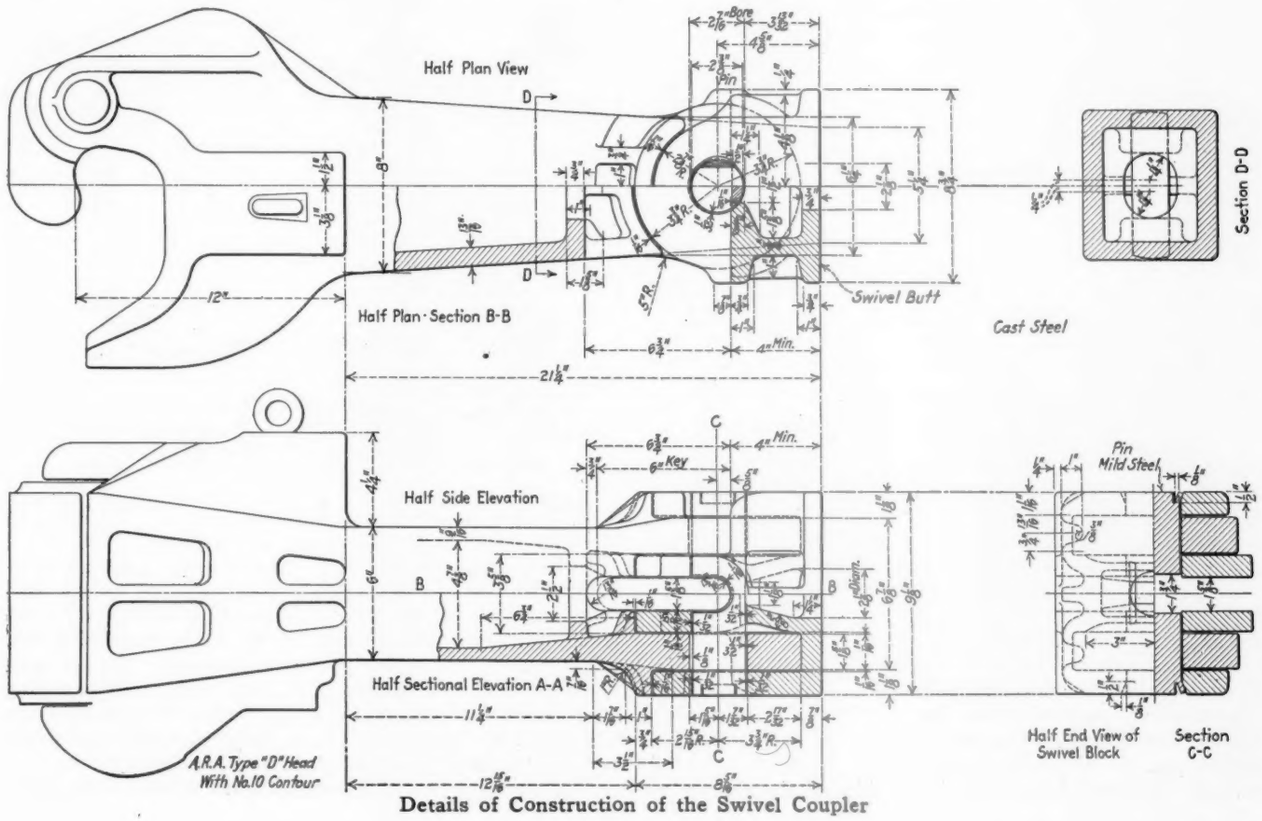
The Swivel Butt Coupler

THE T. H. SYMINGTON COMPANY, New York, has developed and is exhibiting an articulated or swivel butt freight coupler with standard length of shank. It has been claimed that the present standard rigid shank coupler, because of its necessary angular side movement on short radius curves, bears only on one edge against the front end of the draft gear or follower under buff, while under pull the entire load is concentrated on one loop of the draft yoke. For freight cars generally and for usual main line curves, this inherent defect of the rigid butt coupler is not so apparent because of the slight angularity possible between adjacent couplers. Nevertheless, angularity between adjacent couplers does result in unequal stresses in the two sides of the yoke loop under pull and in eccentric and concentrated bearing pressure between the coupler butt and draft gear under buff.

The swivel butt coupler corrects these conditions, permitting the coupler shank to swivel freely in a horizontal plane on the pivot pin connecting the shank and butt. Under buff, regardless of coupler shank angularity, the swivel butt of the coupler bears uniformly against the friction draft gear and over an area much greater than that provided by the A. R. A. standard shank, while under pull the coupler key maintains its normal position with full bearing and with substantially uniform pressure against



Swivel Butt Coupler in Extreme Angular Position



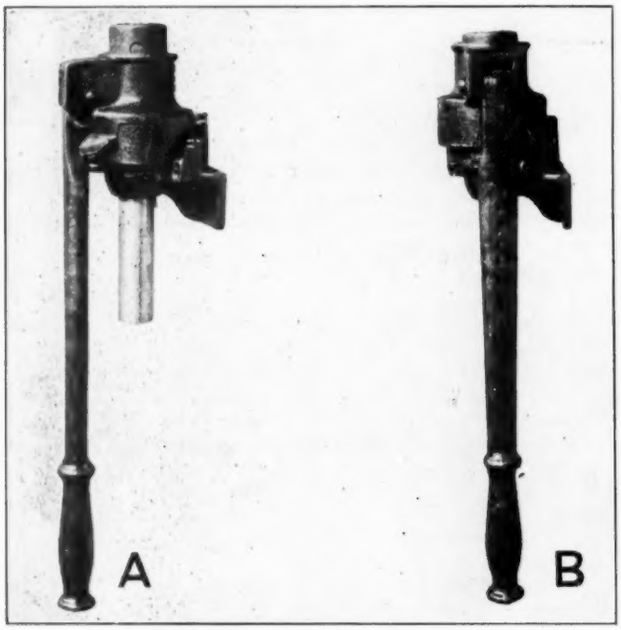
Details of Construction of the Swivel Coupler

both yoke loops regardless of the amount of coupler swing.

It is stated that the swivel butt coupler develops under test a strength of pivot connection 25 per cent greater than the strength of the plain shank coupler and with its use the effective strength of the key and yoke is greatly increased through the equalization of stresses. This coupler should also materially increase the effective life of friction draft gears through the elimination of any angular pressure tending to close the gear irregularly or to subject the friction elements to any tranverse forces. This coupler is a self-contained unit which may be applied or removed in the same manner as any ordinary coupler and requires no change in the carry iron or key or any additional guides. A standard 6 in. by 8 in. shank type D coupler can be used for replacement if necessary.

Blackall Ratchet Hand Brake

A NEW RATCHET HAND brake, featured by a positive back-off arrangement, is being exhibited by Robert H. Blackall, Pittsburgh, Pa. The device is made of malleable iron with the exception of the lever, which is a drop forging. The back-off feature is obtained by a set of teeth in the upper part of the revolving ratchet



Ratchet Hand Brake with Positive Back-Off Arrangement

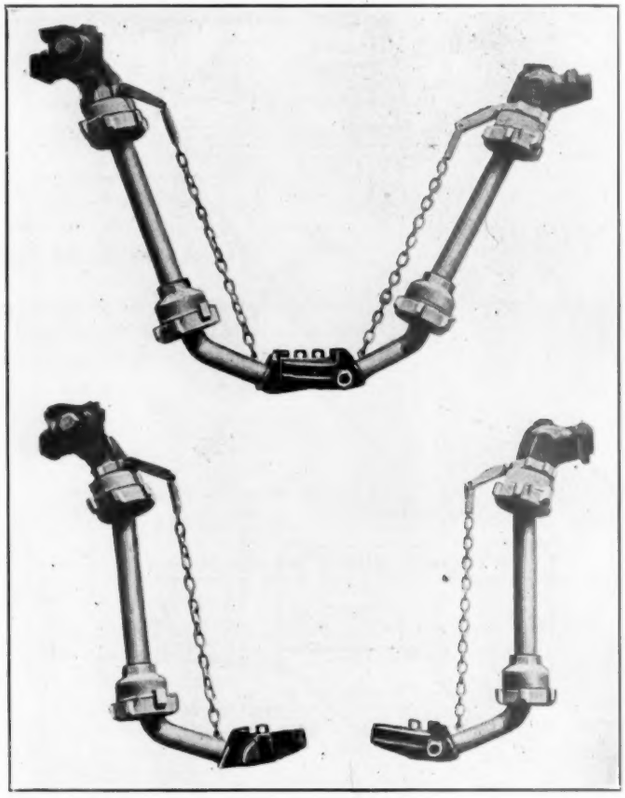
operating in conjunction with the teeth on the lower end of the cap which is attached to the shaft. These teeth, being opposite to the ones used for applying the brake, the shaft can be revolved in a direction to unwind the chain by simply lifting the revolving ratchet and moving the lever in the release direction of the shaft. In former types the teeth on the revolving ratchet operated on a round pin inserted through the shaft.

Another advantage of the Blackall brake is that the lever will always remain in the position shown unless held in some other position by the operator, since the dropping of the lever has nothing to do with the release of the ratchet. The release is accomplished by double sets of release lugs, one being on either side of the device to prevent the possibility of the revolving ratchet cocking on the shaft.

Seven substantial teeth are provided on both the ratchet and attached shaft and a corresponding number on the revolving ratchet, or housing, thus tending to insure strength and long life for the device. The teeth are protected from sleet storms, obviating difficulties from this source. The Blackall ratchet hand brake is shown in application position at *A* in the illustration, the release position being shown at *B*.

Improvements In Passenger Car Steam Heat Connections

FOR A NUMBER of years all-metal steam heat connections for passenger cars made by the Barco Manufacturing Company, Chicago, have been in use on railroads. During this time they have been under observation and test which have demonstrated the advantages of this type of connection. Recently improvements have been



Barco Steam Heat Connections, Showing Method of Supporting Head in Uncoupled Position

made in the design which eliminates some of the troubles to which steam heat connections are subject.

In the latest construction these connections are provided with a combination lock and support. The lock prevents the connections from unscrewing from the end valve and is provided with an arm to which the holding device is attached. The holding device does not in any way interfere with the operation of the connections, or with other hose between cars, but supports the connection when uncoupled and prevents it from dropping down and striking obstructions along the track.

The advantage of this arrangement is readily apparent

as large numbers of hose connections are torn off due to the coupling head being caught in cross-over switches or striking the rails or crossing planks when not hung up in place by the train men.

The Barco steam heat connection can be used wherever pipe locations and end valves conform to A. R. A. standards. They are designed to work in conjunction with any standard steam heat coupling head or end valve. They can be coupled readily with other Barco connections or with the ordinary rubber steam hose on adjacent cars. Coupling is accomplished more readily than with hose and the connections will stand full boiler pressure, making them especially suitable for high-pressure service.

It is stated that the Barco connections will operate throughout the season without attention and with the replacement of gaskets from time to time will last as long as any other part of the heating equipment.

Brill Renitent Car Window Post

UNTIL RECENTLY IN constructing the window system of an electric or gasoline rail car built with steel upper framing, it was customary to attach to the T-posts wooden runways for sashes and curtains and also the wooden pilaster. This construction was early discovered to be not thoroughly efficient due to the fact that the wood has a tendency to swell when subjected to dampness and moisture. This inefficiency of the window system was far from being compatible with the entire practicability of steel car framing, the advantages of which over wooden construction never have been questioned. Thus the was a reasonable one. The result has been the Brill Renitent post ,which has in its favor the advantages of making the sash water-tight, rattle-proof, interchangeable, safe against sudden dropping and of being easily removed from its runways without the use of tools.

Window Sash May Be Removed from the Renitent Post Casings without the Use of Tools

The post, which gets its name from its feature of offering elastic resistance to pressure, consists of a casing of spring brass, attached to the T-post by clips fastened to the casing and fitting into stirrups riveted to the post. The feature of the post making the sash readily removable without the use of tools is of considerable importance, as ordinarily removing a sash from its casing involves careful handling of tools by a mechanic and consequently a loss of some little time. The Brill Renitent post permits the sash to be taken from its casing by simply pulling it out. This means that the operation is one that can be performed by anyone and does not require the services of a mechanic. However, the sash cannot be removed from its casing as a result of the casual pressure exerted by a passenger in raising or lowering the window. Also, no wind pressure, no matter how great, can disturb the sash.

Another advantage of the Renitent post is that rattling is prevented by the elastic pressure which is exerted upon the sash stiles by the spring brass runways. This feature also guarantees the passenger against accidents to hands or arms that may be resting on the window sill and which might be injured by the sash dropping suddenly; should the catches become unfastened, the sash will drop gradually. Still another advantage due to this check on dropping is that the sashes cannot be racked or the glass broken by careless handling.

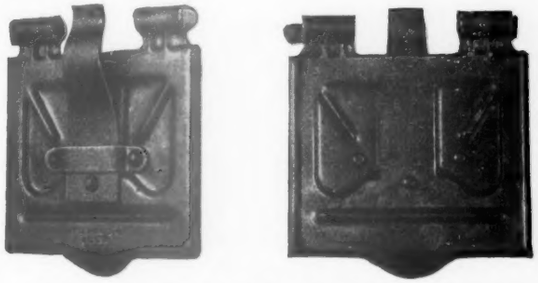
The spring brass casing gives a uniformity which does away with fitting sashes individually into their runways as must be done with sashes which are constructed to slide in wooden runways. Consequently the sashes are interchangeable from window to window and from car to car where the window specifications are the same.

Still another advantage, and by no means the least important, is that the post casing may be readily removed from the T-post, thus making the latter easily accessible should it be necessary to make inspections or to make repairs in case of collision. The Renitent post is made in a range of sizes covering every width of post.

Hoodless Lid for Journal Boxes

THE PRINCIPAL FEATURES of the Asco hoodless type, A. R. A. standard journal box lid, made by the Allegheny Steel Company, Brackenridge, Pa., are the side and bottom flanges, integral turn-down scrolls and chrome-vanadium alloy steel spring. This lid covers the box face clear across the top as well as at the sides and bottom. The Scroll is a part of the lid itself and locks the pin which holds the lid in place. The pin required for this lid has no head, slot or cotter, being simply a piece of ¾-in. round bar, 7½ in. long, which is held in place by the turn-down ends of the scroll.

The lid is equipped with a specially designed, extra-heavy chrome-vanadium steel spring which is removed from all strain on the rivet hole by the use of a double-riveted strap, which also provides a bearing across the entire 2½-in. width of the spring. The spring exerts sufficient pressure to prevent the lid from "dancing" on the box



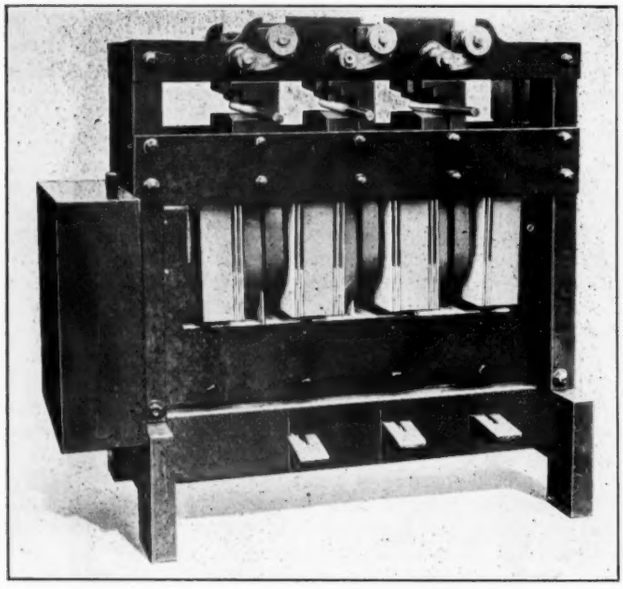
A Journal Box Lid with Several New Features

face, elongating the pin hole and riding away at the top of the box. The lids are shipped with a strip between the spring and the body of the lid which holds the spring out sufficiently to permit the application of the lid without the use of a spring compressor and with no tool but a hand hammer. To apply the lid it is only necessary to lay it on the box face, insert the pin, turn down the scroll on one end of the lid, and release the piece under the spring, all of which can be done by one man in less than three minutes. The lid complete with spring weighs but 4⅝ lb., and the pin 1 lb.

Two-Path Electric Heater

VARIOUS FORGING OPERATIONS demand the heating of material in some cases on the ends, and in other cases at points along the length of the material some distance from the ends, this heating to be accomplished without burning or melting the metal at any point.

The Berwick two-path electric heater, illustrated, has been developed for the above purpose by the American Car & Foundry Company, New York. Two separate electrodes are provided, each properly insulated from the other. The right-hand electrode has at its two upper ends projecting blocks which overhang but are not allowed to touch the left-hand one. The left-hand electrode is stationary, so far as vertical motion is concerned, but may be adjusted horizontally by means of two stud bolts on the rear of the heater.



Berwick No. 3 Two-Path Electric Heater

The top, or right-hand electrode, is arranged so that it may be adjusted horizontally and at the same time be moved in a vertical direction. Horizontal motion is provided by sliding the electrode clamping device along the shaft provided for the purpose, while vertical motion is imparted to the electrode by depression of the pedal, thus causing rotation of the shaft, which in turn, through cams, raises the shaft carrying the electrode. The material to be heated is inserted between the top and bottom electrodes, and due to the double path the time of heating is reduced and the possibility of pitting is not so great.

Flexibility of the rear portion of the bottom electrode is provided by a spring on the rear of the heater, the top face of the electrode being set on an incline so that when the top electrode is dropped into position, contact is assured at four points on the material.

This machine may be built in any number of electrodes up to five. To date single, double and triple electrode machines have been built, while machines carrying more electrodes are in the process of manufacture. As the heaters are now designed, stock can be heated from 1 in. to 8 in. long or from 3 in. to 11 in. With a slight change from the standard heater, this length could be increased to 16 in. or 18 in. For high production on the No. 3 type heater, the stock should be from ⅜ in. to ⅞ in. in diameter. To get a high hourly production, in heating ⅞-in. and 1⅛-in. stock, it is advisable to use the No. 4 type heater. The time of heating is greatly reduced by the use of the two-path method and since the current has four points of entrance rather than two, there is no marring of the stock.

Tests on the Berwick No. 3 two-path heater have been made, the data shown in the accompanying tables being submitted as the results of these tests.

It will be noticed that in some instances the heaters were operated on 440 volts and in other cases on 220 volts. In figuring out the capacity of a heater, it is better to obtain the hourly capacity on a single electrode and then provide the heater with a sufficient number of electrodes to give the desired hourly heats. On these test figures the range of work is from 1⅛ in. to 7 in. long.

TABLE I—TEST DATA SECURED WITH NO. 3 ONE-ELECTRODE, TWO-PATH HEATER

Size of Material	Taps	Length of heat	Pieces per hour	Pounds per hour	Kw hrs per 100 lb.	Volts	Peak Amperes	Peak kilowatt
⅜ in. rod	180	4½ in.	216	30.5	13.4	445	17	7.5
½ in. rod	180	4½ in.	144	36.0	18.0	450	28	12.5
⅝ in. rod	180	4½ in.	120	46.4	18.1	440	34	15.
¾ in. rod	180	4½ in.	96	54.0	19.5	440	34	15.
⅞ in. rod	180	4½ in.	75	63.0	20.0	440	35	15.25
1 in. rod	180	4½ in.	60	60.0	23.6	440	35	15.
1 in. square	180	4½ in.	54	69.0	22.2	440	35	15.
2 in. by ½ in.	210	4½ in.	30	38.2	27.6	440	27	12.
3 in. by ⅜ in.	240	4½ in.	16	23.0	36.8	435	21	9.
½ in. rod	90	6½ in.	68	24.5	19.8	226	45	10.5
⅝ in. rod	90	6½ in.	56	31.5	20.8	226	57	13.
¾ in. rod	90	6½ in.	50	40.6	21.0	224	60	13.
⅞ in. rod	90	6½ in.	48	53.0	21.6	224	60	13.
1 in. rod	90	6½ in.	34	49.3	22.2	223	61	13.5
1 in. square	90	6½ in.	30	55.2	20.8	222	65	14.5
2 in. by ¼ in.	90	6½ in.	39	36.0	26.6	226	63	14.
2 in. by ½ in.	90	7 in.	30	55.2	24.7	230	67	16.
3 in. by ⅜ in.	90	7 in.	27	60.2	22.7	228	70	16.
1 in. pipe standard	210	4½ in.	84	49.9	21.1	445	28	12.5
1 in. pipe standard	180	7 in.	60	55.5	16.0	440	33	14.5
1½ in. pipe standard	210	4½ in.	60	42.2	22.7	440	28	12.5
1½ in. pipe standard	180	7 in.	42	45.9	25.6	440	33	14.5

TABLE II—TEST DATA SECURED WITH NO. 3 THREE-ELECTRODE, TWO-PATH HEATER

Tap	Size	Heats per Hour	Kw. Hrs. per 100 lb.	Volts	Amperes	Average Kilowatts	Peak Kilowatts
120	½ in. by 2½ in.	516	20.0	224	58	13	18
120	⅜ in. by 2 in.	648	23.5	224	45	10	16
135	½ in. by 2¼ in.	372	24.7	226	44	10	13
135	⅜ in. by 1⅞ in.	564	23.9	224	33	7.5	11

Bracket for Automatic Connector

THE AMERICAN AUTOMATIC CONNECTOR COMPANY, Cleveland, Ohio, has improved the method of suspending the American connector and is now using a U-type bracket with a two-point suspension instead of the former method of connecting to the drawbar by a one-point suspension. This makes a stronger installation and permits of a central location for the safety chain which supports the connecting head.

In order to apply this type of bracket two lugs with cored holes are cast on the standard A. R. A. coupler shank. It is stated that this change is made by the coupler manufacturers without additional cost to the purchaser. The lugs do not interfere with the operation of the coupler whether automatic connectors are used or not.

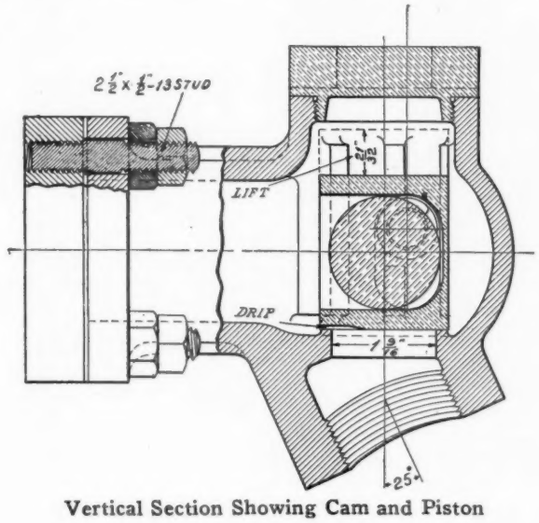
New Gold Car Heating Devices

AMONG THE NEW devices shown this year by the Gold Car Heating & Lighting Company, Brooklyn, N. Y., are a packless end valve, No. 1220, and an improved electric hermostatic control.

The No. 1220 packless end valve was designed for use in connection with a drawbar arrangement whereby all steam and air connections swing with the drawbar. The object of having the valves swing with the drawbar is to maintain the same hose connection centers on curves and cross-overs as are obtained when coupled on a straight track. This arrangement will also maintain the same height of steam heat hose couplers and clearances between the various couplers and hose at all times in train service.

This valve is made with a flange connection to facilitate its application and removal, four ½-in. studs being used to secure the valve to the train line pipe flange. The operation is similar to that of the Gold No. 1126 end valve and employs the well-known cam and piston principle which has been used for years. The packless feature, which eliminates all leaks around the stem, is one of its main features. An automatic drip for the relief of condensation at the rear end of the last car is provided as shown in the vertical cross-section. A universal joint with handle is furnished with each valve, so arranged that the vibration of the train will not open or close the valve in service. The valve was constructed with a view to low maintenance cost

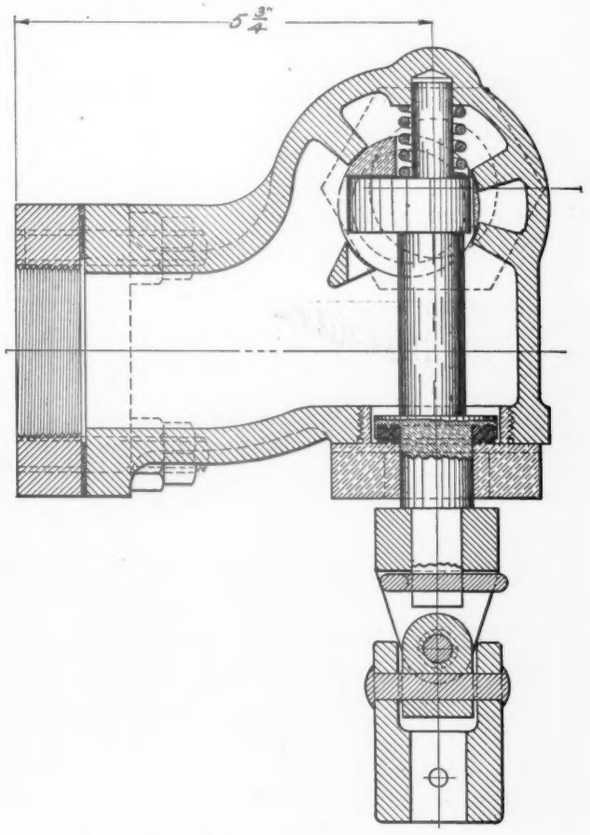
Outside View of End Valve



Vertical Section Showing Cam and Piston

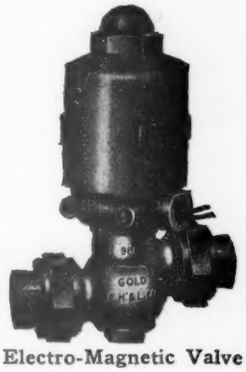
and those now in service are said to have proven entirely satisfactory.

Several new types of thermostats have been added to the line manufactured by the Gold Car Heating & Lighting Company. In the new types for railway cars the electric parts are entirely enclosed leaving only the temperature sensitive element outside, protected by a substantial perforated metal case. Several railway types are on exhibition to care for all classes of service and the preferences of the railway engineers. These consist of the following: "standarding setting" 68 to 70 deg., no adjustment; "night and day" giving a 70 deg. setting at one position and 60 deg. at the other point; "service and layover" giving 70 deg. at service point and 52 deg. at layover point. These new types have been thoroughly tested and have demonstrated their practicability. The manufacturers state that they have found from tests and experience that



Horizontal Section Through End Valve

Thermostat



Electro-Magnetic Valve

a standard setting thermostat with a range of 68 to 70 deg. will save approximately 35 per cent of the steam in service and from 50 to 75 per cent of the steam in the yards during the layover period. The complete equipment for a passenger coach consists of one thermostat and two magnetically operated valves as shown in the illustrations.

Mercury Tractor and Trailer

AMONG THE EXHIBITS of the Mercury Manufacturing Company, Chicago, is the type L tractor, embodying an improvement in industrial tractor construction by means of what is known as the Twin-3 steering arrangement, illustrated in Fig. 1. Instead of a single wheel carried in a fork with no provision for spring

Fig. 1—Mercury Type L Tractor with Twin-3 Steering Arrangement

suspension, this tractor has two front wheels connected by a short axle. The axle in turn is connected to a bracket by two semi-elliptic springs, the bracket supporting the front end of the tractor and being directly attached to the steering lever.

Fig. 2—Type A-132 Freight House Trailer

This tractor is said to possess the same simplicity in steering and the same short turning radius as the single front wheel machine formerly made by the Mercury Company. In addition, the important advantage of full spring suspension both front and rear is provided.

The Mercury freight house trailer, type A-132, is by no means new but has been improved in many points since being first put on the market. For example, a plate type caster is now used, permitting a 10 in. caster wheel to run under a platform only 14 in. high. The face of the caster revolves on a ball race filled with 5/8 in. ball bearings.

The trailer is equipped with a patented spring draft rigging which takes the strain of starting and stopping the load from the framework of the trailer. This draft spring rigging has been designed along the lines of the best automotive trailer construction. The coupling device is a flat stock forging, the arrangement being such that when not in use a single motion lifts it in an upright position and locks it there.

The end and side stake pockets are forgings of exceptional depth, imbedded and bolted in the sills in such a way as to give a firm foundation for the pipe racks and not loosen under heavy strain. This trailer is usually provided with Hyatt roller bearings and fitted for the Alemite system of lubrication.

Flexway Woodworking Machine

AN INTERESTING MOTOR-DRIVEN portable machine, designed to perform many different woodworking operations, may be seen at the booth of the P. L. Billingsley Company, Cincinnati, Ohio. This machine is made in two sizes, No. 1 and No. 2, for relatively light and for heavy work. In general, the driving motor and operating parts are mounted on a small but sturdy four-wheel truck, which runs on a track the full length of the carpenter's bench. Work such as planing, dadoing, beveling, ripping and mortising can all be done with the same machine by simply attaching the required tool.

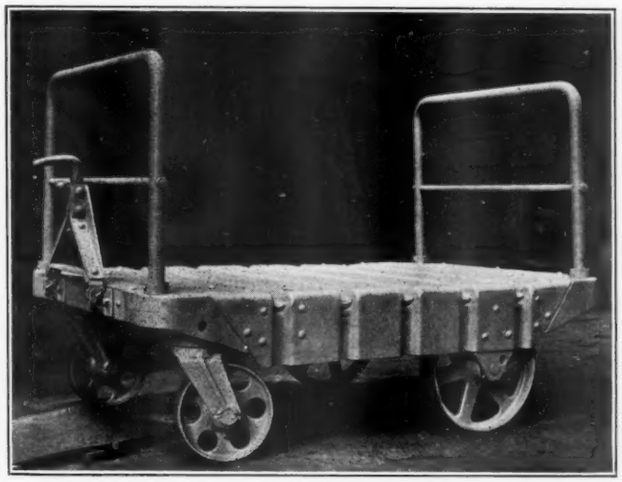
Flexway Machine Equipped for Ripping with Rip Gage

The mechanical connection between the tool and the motor is by means of a universal joint with the power transmitted by two belts. The weight of the parts is carefully counterbalanced by means of two adjustable weights clearly shown in the illustration. It is stated that the machine is both accurate and powerful, enabling it to machine fibrous and knotty lumber with ease. All tool changes are made easily and in an average length of time not exceeding a few seconds.

While the Flexway woodworking machine is ordinarily mounted on tracks it has been found convenient for certain types of work to place it on a wood table mounted on wheels which can be moved rapidly about the shop, at the same time keeping the machine at a convenient height from the floor. The Flexway machine is not limited to the use of tracks but can be worked directly on a lumber pile thereby saving the handling of heavy timbers.

A Sturdy Platform Trailer

A NEW PLATFORM TRAILER with a load-carrying capacity of 6,000 lb. and weighing 600 lb. (making it extremely light for its capacity) is being shown at the booth of the Elwell-Parker Electric Company, Cleveland, Ohio. This wheeled platform trailer, as it is called, is designed especially for interchangeable use with Elwell



Elwell-Parker Wheeled Platform Trailer

Parker electric elevating platform trucks and tractors. The construction, as indicated in the illustration, is extremely sturdy, the main top platform consisting of a pressed corrugated open hearth steel plate. Deep aprons on either side make a substantial support for the load and the heavy 4 in. longitudinal channels all tied into malleable corner castings provide a construction which is both light and strong.

Two long steel caster fork pillars carry graphite bushed bearings at the upper end. The ball swivel bearings and roller caster wheel bearings are retained in deep recesses in the malleable corner castings. Fixed wheels on roller bearings are carried in forged steel yokes, riveted to the top and side. All bearings are provided with pressure lubrication, the casters being 10 in. in diameter and the fixed wheels 15 in. in diameter. End or side standards with the coupler are provided.

When used as trailers the unit is furnished with hook or eye couplers, or with "y" or "x" chain couplers. When desired, this trailer is equipped with four casters instead of two wheels and two casters. Wheels may be provided with 10 and 15-in. solid rubber tires of the pressed iron type if preferred.

When the wheeler platform is used with electric lift trucks, clearance is provided between the wheels in order that the lift truck platform may be driven beneath. When the truck lifts the load, the weight is supported on the truck platform by two longitudinal channels underneath the wheeled platform.

Master Pressure and Master Pilot Gages

AMONG THE NEW devices exhibited by the Ashton Valve Company, Boston, Mass., are master pressure and master pilot gages which are especially adapted for use in large power plants. The master pilot gage is intended to be connected direct to the main steam header and located where it can be readily seen at any part of the boiler room. To increase the size of the graduations, they are usually limited to from 15 lb. below to 15 lb. above the highest working pressure, so that the slightest variation can be readily observed. This is an important advantage in power plants equipped with batteries of boilers, as the standard size boiler pressure gages with smaller diameter dials and finer graduations are not easily read, do not show sensitive pressure fluctuations, and only indicate boiler pressure and not the more important pressure in the main header.

The master pilot gages are made either with dials on one or both sides. The illuminated dial style with semi-transparent opal glass dial and fittings for electric lamps in the case is more generally used, although plain silvered brass dials can be furnished if desired.

The master pressure gage is similar to the master pilot gage in style and diameter of dials, but has all graduations from zero to maximum pressure. This gage is for use in large power houses where it is desired to have dials with prominent graduation figures by which the boiler pressure may be readily read from a distance.

Improvements in Little Giant Motors

THE EXHIBIT OF the Chicago Pneumatic Tool Company, New York, includes among other pneumatic tools a Little Giant drill motor with an improved toggle connecting the piston rod to the crank-pins. This toggle is designed for the minimum weight consistent with strength so as to prevent crystalization in the companion parts and enable it to stand up under the severe and continuous service required of these small high-speed motors. Constant lubrication direct to the crank-pin is also afforded by means of this new toggle. There are no rights or lefts, inside or outside, as heretofore, but each one is the same, designed for easy assembling or disassembling and reduced drill maintenance expense. The stock of these parts which must be carried for spares is also greatly lessened.

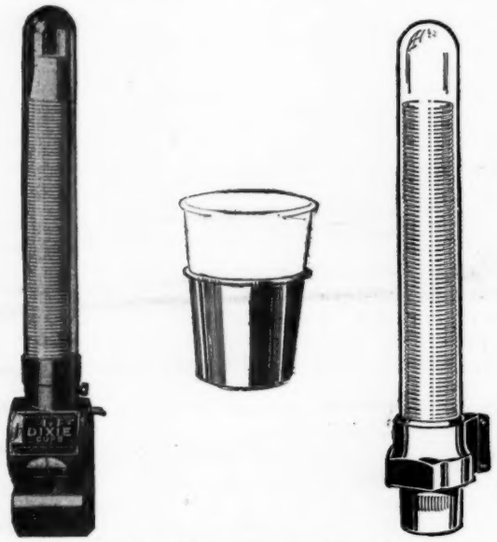
A patented breather tube has also been developed for these drill motors, said to cut the annual cost of lubrication to the extent of $90.70 per drill. Heretofore these drills and all other similar tools have required lubrication twice daily, but with the breather tube the period is lengthened to one week. Several tests have been conducted in which drills were operated for 30 days with one lubrication, but lubrication once a week is recommended.

The Little Giant motors are of the four-cylinder, single-acting type, and a small amount of air escapes by the pis-

tons into the crank case where splash lubrication is provided. There must be a breather to receive this air and heretofore, with the use of a ball valve, the escaping air through the breather valve carried a small amount of lubricating oil with it. The new breather pipe throttles the lubricant and permits the air only to escape. These two improvements have also been incorporated in Little Giant grinders. The same style of toggle is used but the device that separates the lubricant from the air is operated by means of centrifugal force through a tunnel arrangement surrounding the vent tube which is driven at spindle speed.

Dixie Cup Vending Machine

THE EXHIBIT THIS year has a new model Dixie cup vending machine. The Individual Drinking Cup Company, Inc., the original makers of the paper cup, having in mind the usage to which these machines are put, have designed a vendor economically suitable for railroad work. This machine is the result of careful study of railroad needs, built to withstand the exacting use and at the same time attractively designed to harmonize with the finest interiors in either cars or stations. All parts are die



Dixie Cup Container and Vending Machine

cast. The machine is fitted with Yale locks, the cups being protected in a heavy flint glass tube. Over 150 railroads have been using Dixie cup vendors.

This company has also on exhibition this year cups for parlor and sleeping car use and also an attractive service for club and dining cars, both of which are distinct innovations.

Improved Metal Band Saw

SEVERAL CHANGES HAVE recently been made in the Atkins No. 3 metal band saw, made by E. C. Atkins & Co., Indianapolis, Ind., to produce a machine for fast, smooth, accurate and economical cutting. To increase the accuracy of the machine a new adjustable saw guide has been added. This insures an accurate cut in all sizes and qualities of metal up to the full capacity of the machine, when properly adjusted. Hyatt roller bearings are now used in the hubs of the two band wheels, thus doing away with wear in these parts and lengthening the life of the machine. Other important features of the machine are the quick-acting vise, the gravity feed, the automatic stop, the hinged table and the automatic tension guide. The machine is intended for general shop use for all sizes and classes of metal up to 12 in. by 14 in. sections.

Silumite Paint

WHEN THE NUMBER of paint manufacturers is considered and when the large amount of literature and reports on protective coatings for iron and steel are recalled, it would seem as though the subject must have been nearly exhausted by this time. However, it would appear that the Silumite Products Corporation, Philadelphia, Pa., which is exhibiting at this convention for the first time, has something distinctly new to offer in its silumite paint. This is a non-corrosive and plastic compound which is particularly suited for painting steel freight cars, bridges and other structural work.

The possible value of the pigment used in this paint was suggested by the digging up of a bolt in a cut on an abandoned railroad. Although it had been buried for many years, there was no corrosion even on the threads. The deposit, found to consist of almost equal parts of silicon and aluminum oxides, has been named Silumite.

The pigments which form the base of all paints may be divided into two general groups. The first includes those chemically active in that they are attacked more or less by heat, acids, alkalies, water, various chemicals and the weather. In this group are included white and red leads, zinc oxides and ordinary dry colors. The second group includes those chemically inert. Among them are silica, barytes, asbestine and china clay, all of which have the disadvantage of being more or less transparent when ground in oil, and nothing fully equal to linseed oil has ever been found as vehicle or binder for paint.

Silumite belongs in the group of inerts and possesses the advantage of opaqueness and high-covering capacity. In the dry form it is a light grey, but when ground in oil becomes a dark grey, almost black. The paint dries with a hard surface but retains its elasticity indefinitely. As it is not affected by changes in temperature and as its expansion qualities are greater than the expansion of steel, it will adhere to steel cars without cracking and will not be loosened by jar or vibration. It also possesses the advantage of withstanding sulphuric acid, alkali,and salt water conditions. It is ready mixed, spreads and covers well, and is equally suitable for application by brush or spraying machine.

Galena Air Brake Compound

THE GALENA-SIGNAL OIL COMPANY, New York, announces the marketing of a new product for the lubrication of air brake cylinders with which extensive laboratory and service tests have been made during the past year.

"Galena air brake compound" is of a rich reddish-brown color, of such consistency that it may be freely applied with a brush and is claimed to possess the highest melting point yet reached in this class of lubricant. It is free of acid and has no detrimental effect upon leathers. It will not separate and shows exceptional adhesive qualities in clinging to cylinder walls. Before placing the new product on the market the Galena Company first submitted it for trial and test to the leading manufacturers of air brake equipment, who found it equally efficient in the highest and lowest cylinder temperatures met in train operation.